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La Participación de las Minorías Nacionales dentro de Sistemas Educativos Pre-Modernos: El Caso de los Garífunas de Guatemala

Carlos R. Ruano
Universidad de La Salle
Bogotá, Colombia

Resumen
Este artículo presenta los resultados de investigaciones cuyo objetivo principal fue el de analizar las respuestas del gobierno central guatemalteco frente a las necesidades lingüístico educativas de los habitantes pertenecientes al grupo Garífuna de la Costa Atlántica de Guatemala. La situación específica de los Garífunas se estudió con el propósito de observar las respuestas de un Estado Pre-Moderno frente a las aspiraciones de minorías nacionales en su seno. Tambien se analiza en estas líneas, el lugar ocupado por los Garífunas en relación a los otros bloques lingüísticos de guatemala, a saber, las poblaciones de habla Maya y Castellano.

Abstract
This article presents the results of research carried out on the linguistic and educational needs of Guatemala's national minorities and the responses given to those needs by Guatemala's central government. Specifically, the case of the Garífuna population on the Atlantic Coast is studied with a view to understanding the educational policy dynamics underlying Pre-Modern States towards the multicultural groups' lack of participation and incorporation into the national polity. Lastly, the specific educational claims of the Garífunas are studied, particularly in relation to Guatemala's other linguistic blocks, namely, Mayan and Spanish language speakers.

Introducción

La noción contemporánea de Estado- Nación vio sus orígenes dentro del surgimiento del p

No obstante, semejante concepción del proyecto educativo es incapaz de articular espacios

Despúes de más de un siglo de colonización, Francia todavía vacila entre acordar un estatu

Sin embargo, la situación de las minorías nacionales en el contexto de Estados cuyos patro

[illegible]
Este artículo analiza la situación de uno de dichos Estados, en particular en referencia a los

Para fines de esta discusión, en este trabajo se estudian los dos niveles de mayor concentra

Sinópsis histórica

"La carne de negro también se come." (Nota 2)

"Los cakchikeles nos vendieron a los españoles y los negros no sufrieron nada durante la guerra. ¿Porqué los vamos a apoyar?" (Nota 3)

La presencia Garífuna en Guatemala comienza a partir del siglo XVIII cuando grupos de e

Concentrados fundamentalmente en la zona de Izabal, departamento de clima cálido-selvát

Durante todo el período colonial y hasta bien entrado al siglo XX, la política educativa gua

En síntesis, los intereses corporativos de la Iglesia, de la oligarquía terrateniente y de los f

Las políticas educativas -o su falta- permanecieron virtualmente inalteradas entre la Indepe

En la actualidad, los indicadores sociales disponibles para el departamento de Izabal son d

Desde principios del siglo XX hasta en la actualidad, la base económica de la región ha sid

El indígena Garífuna (también llamado Black Carib en algunas tipologías) pertenece a grup
principales
en Guatemala, a saber, la población maya hablante (entre 45 y 60 por cien de la población

En años recientes, tambíen han tenido lugar iniciativas de tipo educativo en Honduras. Tal

Por su parte, el sistema educativo de Belize, país que cuenta con 6 por ciento de población

La respuesta del gobierno central guatemalteco a las necesidades educativas de la po

Hasta hace muy poco tiempo, el Ministerio de Educación o MINEDUC, no tenía política n
mencionar la lentitud del proceso de reforma educativa que tiene que pasar por múltiples n

A nivel del país en su conjunto, los índices de financiamiento del sistema educativo refleja

Esta escasez de recursos se traduce en la ausencia de programas de educación bilingüe a ni

Otro elemento importante que contribuye a la situación de parálisis educativa que vive el p

A nivel operacional, también existen grandes limitantes para el desarrollo de una pedagogí

Conclusiones: los límites de la reformas educativas en el contexto de Estados débiles

"Creemos en una educación para todos, alimentada por la vida, enriquecida por las alegría

Desde su independencia de España hasta nuestros días, el Estado guatemalteco se ha caract

Tras casi 40 años de guerra civil, los Acuerdos de Paz firmados en 1996 entre las fuerzas d
Garífunas ganaran un espacio sociohistórico y un reconocimiento como actores políticos d

Notas

1. Este trabajo se basó en investigaciones de campo conducidas en Guatemala y Hondu
2. Respuesta de un oficial del ejército guatemalteco a preguntas relativas a la incorpora
3. Comentario de un líder indígena durante un congreso de políticas culturales celebrad
4. Datos para este segmento se obtuvieron a partir del informe preparado por Naciones
5. Entiéndase en éstas líneas, campañas de alfabetización en idioma castellano. Aunqu
6. Por ejemplo, el documento preparado para UNESCO titulado Cultural policy in Gua
7. Aunque una discusión a profundidad sobre el rol jugado por los establecimientos de
8. Conversación con una educadora Garífuna residente en Ciudad de Guatemala.

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Alexander v. Sandoval: A Setback for Civil Rights

Kevin G. Welner
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Abstract
This article confronts the serious implications of a recent U.S. Supreme Court decision, *Alexander v. Sandoval*, which eliminated an important legal avenue for civil rights plaintiffs. For over 35 years, individuals have been allowed to bring lawsuits directly challenging violations of rights set forth in the federal regulations implementing Title VI of the 1964 Civil Rights Act. Because these actions could be grounded in proof of disparate impact, rather than discriminatory intent, they allowed for some claims that could not go forward under other legal authorities, such as the Fourteenth Amendment. While the author concludes by identifying key remaining options, he highlights the real damage done by this decision.

I recently had occasion to remember a meeting three years ago with Richard Cohen, the legal director of the *Southern Poverty Law Center* in Montgomery, Alabama. At that meeting, he told me about his lawsuit on behalf of Martha Sandoval, a house cleaner from Mobile and a Mexican immigrant. Ms. Sandoval was denied a drivers' license because she could not pass the state's written exam. The voters of Alabama had passed an English-Only law, and the state interpreted that law to require that drivers' license exams be offered only in English (the only state with such a limitation). While Ms. Sandoval's working knowledge of English was sufficient to read road signs, it was not sufficient to take the exam.

Mr. Cohen brought a class action lawsuit on behalf of Ms. Sandoval and the 24,000 other non-English speakers in Alabama, alleging that the state violated federal law by requiring applicants for drivers' licenses to take the written examination in English. The particular federal law that supported this lawsuit is known as Title VI of the 1964 Civil Rights Act (42 U.S.C. § 2000(d)). Title VI prohibits discrimination grounded in race, color or national origin.

Like the Fourteenth Amendment's Equal Protection Clause, Title VI has been judicially interpreted to require proof of discriminatory intent. Proof limited to discriminatory effect, such as is clearly evident with the Alabama law, is insufficient. Yet, while courts have interpreted the statute itself to bar only intentional discrimination, federal *regulations* implementing Title VI, pursuant to § 602 of the statute, have been consistently given a broader interpretation (see regulations at 34 C.F.R. §100.3(b)(2)). Lawsuits grounded in these implementing regulations are unique in that they allow people like Ms. Sandoval to make their arguments in federal court by showing the discriminatory effect ("disparate impact") of a law. This brief article is about such Title VI disparate impact lawsuits and April's Supreme Court decision against Martha Sandoval, in *Alexander v. Sandoval*, 121 S.Ct. 1511 (2001), eliminating the right of Ms. Sandoval and all others to pursue lawsuits directly enforcing the Title VI regulations.

Intent versus effect—what's the difference? After all, the worst discrimination is surely intentional. The SPLC, for instance, has built an impressive record of court victories on behalf of victims of such egregious racism. These cases target the KKK and neo-Nazi organizations. The defendants are abhorrent, and the issue of racist intent cannot be seriously questioned. Further, we as a society do not want to encourage frivolous lawsuits grounded only in a statistically disproportionate effect on some minority group. What is the harm of limiting lawsuits to only those where discriminatory intent is clear?

In a nutshell, policy makers today, no matter what their actual intent, are loath to expressly state an intent to discriminate. Even the English Only law that prompted Ms. Sandoval's lawsuit was likely promoted on facially neutral grounds such as unity, assimilation, and even fiscal efficiency. Within certain limits, policies that have a clear discriminatory impact should be closely scrutinized, and the government should have to offer reasonable justifications for them, even if there exists no smoking gun demonstrating an intent to discriminate. This is how courts approached Title VI disparate impact cases before April's Supreme Court decision. While the person bringing the case must prove that the practice in question has a disproportionate and negative impact on a protected group, the defendant (e.g., a state government or a school district) can then respond by demonstrating a legitimate, nondiscriminatory reason for the practice (see *Powell v. Ridge*, 189 F.3d 387 (3d Cir. 1999); 34 C.F.R. §100.3(b)(2)). Frivolous lawsuits therefore fail either because of a lack of proof of disproportionate negative impact or because of an appropriate, nondiscriminatory reason for the practice.

In Ms. Sandoval's case, the SPLC lawyers easily proved that the drivers' license rule had the prohibited effect of discriminating on the basis of national origin. Given that illiterate residents who could nonetheless understand spoken English were allowed to take the Alabama drivers' license exam in spoken form (with someone reading them the questions in English), the state could not justify denying residents like Ms. Sandoval the opportunity to take the written exam in a form that they could understand. The trial court agreed with Ms. Sandoval, as did the court of appeals. Normally, this would have been the end of the matter.

But attorneys for the State of Alabama took one last shot. They asked the U.S. Supreme Court to declare that Congress never intended private individuals to be able to bring lawsuits directly under the authority of the Title VI implementing regulations. The Court agreed to hear the case, and on April 24, 2001 they reversed the judgment. By a 5-4 majority in *Alexander v. Sandoval* (the same breakdown of individual Justices deciding in favor of George W. Bush in *Bush v. Gore*), the Court concluded that Congress only intended these regulations to be directly enforceable by the Office of Civil Rights—a political body with very limited resources—not by a private right of action.

The Court's decision even to consider this case was shocking. In the 37 years since the passage of the Civil Rights Act, the Court has several times given a tacit nod of approval to the now-forbidden private actions. Moreover, the issue of private actions brought under the Title VI regulations had been decided by 9 of the 12 U.S. Courts of Appeals, and there was no dispute: all agreed that such an action is legally appropriate. The Supreme Court will rarely hear a case addressing legal issues about which there exists no dispute among the various Courts of Appeals. Yet this Court reached out to hear the case.

The fallout from *Alexander* is potentially enormous. For instance, in New York, ACLU attorneys may not be able to continue their Title VI action claiming that educational opportunities for the state's minority students are so inferior that they amount to discrimination. Similarly, in Pennsylvania, Philadelphia may have to dismiss its Title VI claim alleging that the Pennsylvania funding formula disparately impacts districts with higher minority enrollments. Dozens of other important civil rights cases will suffer a similar fate.

For these reasons, the Court's decision in *Alexander* comes as a great disappointment. While expectations for the present Supreme Court may be low, courts as an institution play a crucial role in our constitutional system. American courts, particularly federal courts, once represented a refuge for children seeking access to educational opportunities. While the legislative and executive branches were responsive to those who sought policies expanding local control, pushing for tougher standards, or enhancing individual choice, the judicial branch served the interests of equity. Civil rights groups leveraged court mandates into broader, equity-minded educational policy reforms benefiting, among others, African Americans, Latinos, immigrants, and students with disabilities. Over the past two to three decades, litigation has undoubtedly been a less successful tool for social justice. Yet this shift, partially attributable to a corresponding shift in judges' ideologies, need not be permanent; the judiciary retains its unique institutional position as protector of the constitutional rights of political minorities.

The gloomy picture painted by the above description of *Alexander* and its probable aftermath should be tempered by the reality that, for better or worse, many judges' decisions in civil rights cases are grounded as much in their understanding of what is "fair" as in the specific elements of the legal claim for relief then at issue. From this perspective, what is important is that civil rights cases must find a legal toehold—some legislative justification to have the case considered. While the useful toehold provided by the implied right of action under the Title VI implementing regulations has now disappeared, other options remain.

The most likely alternative course for future private actions may be offered by Section 1983 (of Title 42 of the U.S. Code), the reconstruction era legislation that authorizes lawsuits against the government or government officials responsible for the "deprivation of any rights, privileges, or immunities secured by the Constitution and laws." The implementing regulations for Title VI may fall within the scope of Section 1983's protections. Actions brought under § 1983 bypass the increasingly difficult *implied right of action* analysis. Congress expressly intended § 1983 to give civil rights plaintiffs access to the direct judicial relief.

In fact, the Pennsylvania funding case mentioned above includes a disparate impact claim for relief, under the terms of Title VI's implementing regulations, based on § 1983 (*Powell v. Ridge*, 189 F.3d at 400-403). *See also*, Bradford C. Mank, *Using §1983 to Enforce Title VI's Section 602 Regulations*, 49 U. Kans. L. Rev 321 (2001) (arguing that § 1983 should support private rights of action to enforce the disparate impact regulations issued pursuant to § 602). In the perhaps overly optimistic words of Justice Stevens (dissenting) in *Alexander*, "[T]his case is something of a sport. Litigants who in the future wish to enforce the Title VI regulations against state actors in all likelihood must only reference § 1983 to obtain relief." 121 S.Ct. at 1527.

Another alternative would be to turn to Congress for legislation that would return Title VI jurisprudence to its pre-*Alexander* state, as has been done with the Civil Rights Restoration Act of 1991 following the Supreme Court's decision in *Wards Cove Packing Co. v. Atonio*, 490 U.S. 642 (1989). But such remedial legislation seems unlikely be approved by Congress or signed by the President in the near future.

During my meeting with Richard Cohen of the SPLC, we discussed the importance of responding to systemic denials of educational rights with lawsuits that employ systemic legal approaches. When he argued Ms. Sandoval's case before the Supreme Court, he tried to protect one such systemic approach. The Supreme Court's decision to undermine Title VI unquestionably represents a severe setback for children seeking schooling opportunities. Eventually, the education rights community will be able to recover from this blow, but this will take time and the opportunity costs will be high. Instead of working to advance the cause of equal rights beyond its present state, advocates will have to devote their energies to repairing the damage incurred last week. In the meantime, many aggrieved students and others will find themselves without sufficient remedies.

The Court's decision in *Alexander* was much more than a legal abstraction: it marks a poignant shift in how Americans are allowed to treat one another.

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Occupational Trends and Program Priorities

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Abstract

Institutions of higher education that respond to the economic base in their region will remain competitive and be better positioned to obtain public funds and donor support. In addition to mandated program viability standards based on measures such as graduation rate, individual institutions and state coordinating boards can use ten-year occupational trend data to assess future program viability. We used an occupational demand model to determine whether academic programs can meet projected statewide needs for high demand and high growth occupations. For example, computer engineering, the highest growth rate occupation in Alabama, is projected to have 365 annual average job openings, with 93.6% total growth over ten years. But only 46 computer engineering majors graduate annually from all Alabama institutions of higher education. We recommend using an occupational demand model as a planning tool, decision-making tool, and catalyst for collaborative initiatives.

Introduction

Institutions of higher education operate in a highly competitive environment. The push for increased state funds, new programs, more students, and expanded services led to increased emphasis on statewide coordination during the 1950s and 1960s as states sought to bring rationality to their rapidly growing higher education systems. However, competition took on new meaning during the 1980s and 1990s when state revenue for higher education began to dwindle or disappear as other state functions moved into priority funding positions. In addition, state legislatures and the public at large began to raise questions about accountability, performance, and productivity of the higher education systems (McGuinness, 1997). At the same time, business and industry began calling for more effective responses to employment needs.

By the late 1990s, it was clear that the market for higher education had changed. While the values and traditions of the academy remained "venerable sources of strength," institutions and their governing boards began to look to the external environment to understand the context in which those values and traditions must operate (Mingle, 1998). That environment included a changing labor market that demanded new skills for workers, the emergence of technologies such as the Internet, the challenge to market share of traditional colleges and universities by new providers of postsecondary education, and the intensely competitive and changing public policy context, which exacerbated cost, price, and productivity pressures on institutions of higher education (Mingle, 1998).

To strike a balance between the demands of the market, the academy, and the public, some state-level higher education agencies have taken steps to link occupational trends to academic program priorities based on (a) the connection between higher education and the economy; (b) the current focus on meeting student and employer demands for job and skills training; (c) the need for public institutions of higher education to respond to state policy directives and demonstrate wise stewardship of public resources; and (d) the benefits of academic program planning and review in a statewide context.

Connection Between Higher Education and the Economy

In response to a growing demand for agricultural and technical education, Congress passed the Morrill Act of 1862 to provide funds to establish land-grant colleges so that members of the working class could obtain a liberal, practical education. Every state and territory now has one or more land-grant colleges (National Association of State Universities and Land-Grant Colleges, 2000).

The Carnegie Foundation for the Advancement of Teaching (1976) suggested the two best restraints on higher education are competition and state budgets. An institution that responds to the economic base in its region will remain competitive and be better positioned to obtain financial support from donors and legislators.

According to Seymour (1988), one of the key characteristics of strategic planning is "matching institutional capabilities with environmental conditions to achieve goals," and listed three considerations for determining program priority: mission, internal factors, and external factors. Toombs and Tierney (1991) recognized environmental factors, and specifically "market forces," in their components of curriculum design.

Hines (1988) points out in a review of the relationship between higher education and state governments that:

> Increased investment of public funds in higher education toward the goal of increased economic development is predicated on the assumption that there will be a payoff, that economic activity will increase, that the tax base will expand, and that revenue will increase. (p. 33)

Although it may be appealing to define mission, role, and program priorities in isolation, successful universities understand that this process cannot occur without consideration of their constituencies (Western Interstate Commission for Higher Education, 1992a). In fact, many higher education plans include the education of personnel needed for "an advanced economy" (Western Interstate Commission for Higher Education, 1992b). For example, colleges and universities have added academic programs in areas such as computer engineering and management information systems when those knowledge areas became crucial for industrial development.

Current Focus on Meeting Student and Employer Demands for Job and Skills Training

Mingle (1998) noted that higher education is moving from a producer-dominated enterprise to one fully sensitive to and focused on the consumer. Public expectations of higher education appear to have no bounds, putting considerable pressure on colleges and universities:

> The American labor market is both extraordinarily diverse and exceptionally dynamic, making it difficult not only to generalize about the knowledge and "skill sets" college graduates need but also to make predictions about the future demand for specific occupations. Through surveys and interviews of employers and external advisory groups, increasing numbers of colleges stay closely tuned to this changing job market. This information is shaping college programs in important ways. (p. 6)

The Joint Commission on Accountability Reporting (1996) emphasized the need to stay focused on the consumer and recommends that institutions survey graduates and report placement rates (pp. 38-50). While placement is an important measure of accountability, it is more closely related to current employment than to future employability. Nor can placement identify employment possibilities for which no programs are in place. State-level coordinating agencies currently explore ways to conduct market analyses to determine how best to address the needs of their state. A review of the Alabama Commission on Higher Education (1999) recommended that the agency devote more effort and resources to statewide market analyses, and the State Higher Education Executive Officers Association offers

"State and System Tools for Success in the New Market Environment" as an on-line seminar for state higher education agency staff.

With respect to employer needs, there is a well-documented national disequilibrium between the supply and demand for information technology workers. Evidence for a severe worker shortage includes a high job vacancy rate, low unemployment, projected demand outstripping supply, higher than average salary increases, and demand for foreign workers (Freeman & Aspray, 1999). The national failure to develop sufficient technical talent is so severe that it could "substantially undermine" the future growth of the electronics and information technology industry (Platzer, Novak, & Kazmierczak, 1999, p 13).

Need for Public Institutions of Higher Education to Respond to State Policy Directives and Demonstrate Wise Stewardship of Public Resources

In recent years, many states have required academic program review and approval as a way to curb unnecessary duplication of programs among public institutions and to judge the appropriateness of existing programs (McGuinness, 1997). Most criteria for program review require employer needs analyses that indicate whether new or existing programs respond to employment needs. In some cases the link between employment opportunities and program graduates is a critical factor. For example, Alabama passed "program viability" legislation in 1996 that requires academic programs in all public institutions to meet minimum graduation rates or be terminated (Program Viability Act, 1996). After a three-year monitoring period of non-viable programs, institutions can request waivers for programs that still do not meet graduation rate standards provided they can document unique or extraordinary characteristics of the program. Factors that may be considered in this evaluation are placement of graduates in program-related areas of employment, success of program graduates, and market demands. Alabama institutions are evaluating how best to assess the link between graduates in low-producing programs and the state's employment needs.

Benefits of Academic Program Planning and Review in a Statewide Context

One economy driven process is the relationship between occupational trends and institutional programs. While individual institutions and groups of institutions can analyze occupational trends within their state, the institutional approach does not take into account what other in-state and out-of-state institutions are doing to meet the need. With limited resources available to higher education, institutional representatives, legislators, and policy makers must be committed to the most effective use of state dollars for the citizenry. A statewide approach to academic program planning and review requires institutions to think "outside the box," because what appears to be best for an individual institution may not be the best course of action for the region. While an institution may identify a high-demand occupation based on labor market projections and employer feedback, it must consider the productivity of existing and planned programs in the region to avoid potential duplication and market oversupply. The public trust requires that state dollars be spent on programs that have high priority and provide substantial benefit.

Previous Use of Occupational Trends at the State Level

Although state-level agencies have been interested in links between occupational projections and academic programs for some time, the challenge has been to assess these relationships as a context for institutional program review. Some states have developed comprehensive proactive approaches to program needs assessment, while others simply react to institutional plans.

Arizona. In 1998, the Arizona legislature challenged the Board of Regents and the State Board of Directors for Community Colleges to develop a mutual statewide process for identifying and meeting needs for advanced postsecondary education. In response, the two boards jointly convened the 1998 Higher Education Study Committee. The process utilizes a Joint Review Committee to evaluate requests for new or expanded programs on the basis of statewide criteria for need. Although needs assessment remained an institutional function, the case for a new program could be strengthened if multiple institutions partnership to meet the need. They recommend several sources of data to demonstrate program need, including the Arizona Department of Commerce, the Arizona Department of Economic Security, and the Bureau of Labor Statistics (Arizona Board of Regents and the State Board of Directors of Community Colleges for Arizona, 1998).

Florida. Sanchez, Laanan, and Wiseley (1999) provide an excellent summary of state efforts to measure students' post-college earnings. Most initiatives follow program completers or graduates into the workplace to estimate average annual earnings or placement. Florida pioneered in this area with the Florida Education and Training Placement Information Program, established by a legislative directive and a joint agreement between the Florida State Department of Education and the Florida Department of Labor and Employment. Other states such as Ohio, California, North Carolina, Texas, and Washington have pursued similar approaches. However, these efforts provide little information on whether graduates are being trained in the fields most needed by employers. Idaho has taken a somewhat broader approach to needs assessment through statewide roundtable discussions and the use of specific advisory committees (Dodson, 1999).

Illinois. The Illinois Board of Higher Education is a member of a consortium with other state agencies committed to sharing labor market information. The board has conducted statewide analyses by field of study, comparing employment projections with graduate survey data. Typically, the board will conduct a statewide study of existing programs in a field, followed by institutional studies of related programs a few years later. The initial analysis gives institutions a useful context for their own assessments. One recent board study included social work and human services (Illinois Board of Higher Education, 1997).

A similar review of health professions education in Illinois in 1992 compared projected average annual job openings with estimated total supply and number of degrees conferred in the state, and made recommendations for capacity adjustment in individual programs. The analysis was followed by recommendations for health professions education in 1993 and the implementation of policies for health professions education in 1995. The purpose of the study was to adjust educational capacity, and the board recommended that some programs be reduced and monitored, some be maintained, and some be expanded (Illinois Board of Higher Education, 1995).

In 1998, the board published a report that identified and proposed solutions to meet the educational needs in Lake County (north of Chicago). The study included market research conducted by a private consulting firm. The board staff convened a number of forums to provide an opportunity for Lake County residents to express their educational needs, and conducted further research to analyze demographic and economic data relevant to educational demand and need. They used the number and percent of positions in Lake County that required postsecondary education as compiled by the Illinois Occupational Information Coordinating Committee to assess educational demand (Illinois Board of Higher Education, 1998). Based on the results, the board established a University Center in Lake County that offered high quality, convenient, and affordable education built on the resources and programs of existing institutions.

Ohio. Gottlieb (1995) used an industry-occupation matrix combined with occupational projections to identify industries likely to provide future entry level and advanced training jobs as a way to re-prioritize job training programs in two-year institutions in the Cleveland-Akron area of Ohio.

Wisconsin. The University of Wisconsin System supports a market research unit that works with universities to identify needed programs in their region by looking at demand from employers and students. Faculty still identify areas of interest for new programs, but the market research unit then samples regional businesses using the Dunn and Bradstreet list (Sell, 1999).

Statement of the Problem

The state of Alabama needs a systematic statewide process for comparing occupational projections with the number of graduates of academic programs for use in program planning. Although individual institutions have made such comparisons as needed to foster strategic planning for program prioritization, resource allocation, curriculum development, and course availability, the need to analyze occupational and graduation data at the state level has been heightened by several recent developments. They include more limited resources to support higher education, passage of a program viability bill with provisions for waiver of non- viability based on factors related to meeting occupational needs, and recommendations by the Evaluation Committee of the Alabama Commission on Higher Education to increase the agency's use of market research as a planning tool.
The purpose of this study is to compare occupational projections for the state of Alabama with graduation rates in corresponding academic programs to provide a context for state and institutional policy decisions on current programs and new program initiatives, and to comply with recent program viability legislation.

Methods

We employed three major tools to establish a context for state and institutional policy decisions: (a) statewide employment projections, (b) number of degrees conferred, and (c) a crosswalk to relate one with the other. We limited the analysis to high-demand and fast-growing occupations in Alabama that require a Bachelor's degree or higher, as identified by the Alabama Department of Industrial Relations. They define *high-demand occupations* as having at least 535 average annual job openings. *Fast-growing occupations* have at least 50 average annual job openings and an average annual growth rate of at least 3.2% (Alabama Department of Industrial Relations, 1998).

Employment Projections

The Bureau of Labor Statistics has prepared national employment projections since 1957 (U. S. Department of Labor, 1995). Minimal input data was available at first, but by the early 1970s a standard methodology was developed that is still in use today (U. S. Department of Labor, 1986; 1997). The bureau releases ten-year national employment projections every other year. It uses many factors to make projections, including the composition of the labor force, economic growth, demand, and occupational trends. For example, occupational trends are based on data collected from an Occupational Employment Survey prepared and summarized by the bureau. The survey is administered by each state, and contains data on approximately 775 occupations in 350 industries. The data includes number of employees and salary range by occupation, providing regular empirical information on occupational employment.

Information is stored in a projections database that is programmed to generate employment trends over a ten-year period. The bureau makes several key assumptions during the projection process. For example, work patterns will not change during the projection period (length of average work week), broad social and educational trends will continue, there will be no major war, there will not be a significant change in the size of the armed forces, and there will be fluctuations in economic activity due to the business cycle. The most recent national projections localized for the state level are for the ten-year period 1996 - 2006 (Silvestri, 1997). (See, also, U. S. Department of Labor, 1998.)

The bureau monitors and validates projections, and exceptions to general assumptions are reported. For example, they found that both the manufacturing and health industries suffered unexpected setbacks in 1998 that were attributed to the Asian economic crisis and more stringent health care reimbursement policies (Goodman & Consedine, 1999).

The bureau conducted a detailed analysis of the educational requirements of occupations and published the minimum amount of preparation that most employers required. However, requirements can vary from employer to employer, and there may be more than one way to qualify. For example, the educational preparation listed for registered nurses is associate degree, although baccalaureate graduates take the same licensure exam and are hired for the same entry-level positions. For that reason, bureau educational requirements for each occupation must be evaluated for accuracy in a given state (U. S. Department of Labor, 1995; 1996).

The demand for college graduates continues to increase as duties become more complex due to new technology and changing business practices. This phenomenon, called *educational upgrading*, accounted for one-third of the college-level jobs created between 1983 and 1994 (Shelley, 1996). Changes in employment growth can be due to the growth of an industry as well as changes in occupational structure. For example, employment in the health-related professions is expected to increase along with growth in the health services industry. More use of computer technology, a structural change, will accelerate the need for systems analysts and programmers, and reduce the need for typists (Franklin, 1997).

Nationally, the ten fastest growing occupations *that require a bachelor's degree* are: (a) database administrators, computer support specialists and all other computer scientists, (b) computer engineers, (c) systems analysts, (d) physical therapists, (e) occupational therapists, (f) special education teachers, (g) speech- language pathologists and audiologists, (h) physician assistants, (i) residential counselors, and (j) securities and financial services sales workers (see Table 1); (U. S. Department of Labor, 1998, p. 52).

Table 1
Fast-Growing Occupations in Nation Requiring a Bachelor's Degree, 1996-2006

Occupation	**Ten-Year % Growth**
Database Administrators	118
Computer Engineers	109
Systems Analysts	103
Physical Therapists	71
Occupational Therapists	66
Special Education Teachers	59
Speech-Language Pathologists and Audiologists	51
Physician Assistants	47
Residential Counselors	41
Financial Services and Sales	38

The bureau provides each state with a data set for making local projections. Using special software, states prepare projections that are parallel to the national but based on local populations, industries, and employees. We used the Alabama Occupational Trends data for April 1998, which are localized from federal projections, to estimate statewide employment demand in various occupations (Alabama Department of Industrial Relations, 1998). We defined employment or *occupational demand* as the projected annual average number of job openings in Alabama for the period 1996 -2006. Specifically, we evaluated the projected employment need for all high-demand and fast-growing occupations that require a bachelor's degree or higher (we excluded first professional preparation). In Alabama these occupations are: (a) secondary school teachers, (b) general managers and top executives, (c) registered nurses, (d) elementary school teachers, (d) systems analysts, (e) special education teachers, (f) accountants and auditors, (g) computer engineers, (h) engineering, math and natural science managers, (i) residential counselors, (j) preschool and kindergarten teachers (combined group), (k) physical therapists, (l) operations research analysts, (m) speech- language pathologists and audiologists, and (n) occupational therapists.

Number of degrees conferred

Public and private institutions of higher education in Alabama prepare a mandatory completions survey as one of the federal reports used in the Integrated Postsecondary Education Data System of the National Center for Education Statistics (U. S. Department of Education, 1994 - 98). The completions survey is a comprehensive report of graduates organized by award level and curriculum. The curriculum area is designated by a program description and six-digit code based on the national Classification of Instructional Programs taxonomy. (For more information on academic program definitions, see Morgan, Hunt, & Carpenter, 1991). Institutions forward an annual completions report to the Alabama Commission on Higher Education, the statutory state coordinating agency, which maintains a longitudinal statewide repository of these reports (Alabama Commission on Higher Education, 1994 - 98).

Using this curricula completion information we were able to determine the number of degrees conferred in a given program in a given year in Alabama. For example, the number of completions in registered nurse preparation programs is the sum of the number of nursing degree completions reported under program code 51.1601 at each institution in a given year. We can use this method to determine the total number of degree completions reported for any academic discipline in the state. In this study, we define *degrees conferred* as the average annual number of completions reported by postsecondary institutions in Alabama based on the five-year period 1993-94 through 1997-98 (July 1 - June 30 reporting period). Averages include public and private institutions and are based on Integrated Postsecondary Education Data System reports.

Crosswalk

Some occupations listed in the state employment projections have an obvious relationship to an instructional program reported in the completions survey. When questions arose, we consulted a crosswalk database to help identify the relationship. The database relates occupations to academic programs by linking an occupational employment survey code to an instructional program code (National Crosswalk Data Center, April, 1999).

For example, based on statewide repository data and prior knowledge, we identified 24 Alabama colleges and universities that report baccalaureate and master's degree completions in programs that lead to employment in the occupational category *systems analyst*. Colleges confer degrees in the following related instructional programs (and program codes): (a) computer and information sciences, general (11.0101), (b) information sciences and systems (11.0401), (c) computer science (11.0701), (d) computer and information sciences, other (11.9999), and (e) management information systems and business data processing, general (52.1201). Note that all of these programs are offered at the bachelor's level, and programs (a) and (e) are offered at the master's level as well.

A crosswalk database query for *systems analyst* degree program codes pointed to the following occupations (and occupational codes): (a) systems analysts, electronic data processing (25102), (b) data base administrators (25103), (c) computer support specialists (25104), (d) computer programmers (25105), (e) computer programmer aides (25108), (f) all other computer scientists (25199), and (g) computer science teachers, postsecondary (31226).

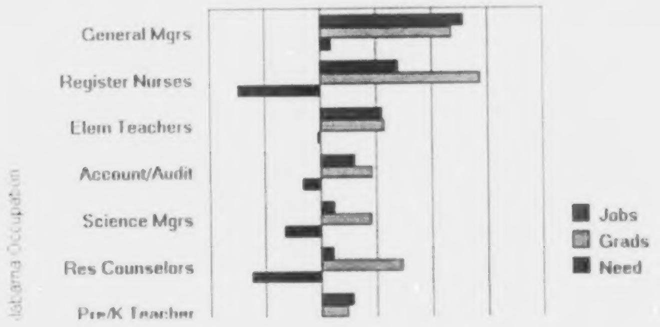
The crosswalk query shows that graduates who earn a systems analyst or related degree in college are reported on the Occupational Employment Survey as working as systems analysts, as well as in a cluster of related jobs. Thus, we can link the number of systems analyst and related degrees conferred to the number of projected job openings for systems analysts and related occupations, although some graduates will enter other fields. Note that to be conservative in our estimate of needed graduates, we limited the number of projected job openings to systems analyst, eliminating all of the related fields. The articulation between academic program and occupation will be more precise for some occupations than others. Occasionally, crosswalk relationships were adjusted to better reflect specific conditions in Alabama.

Findings

The application of this model to 15 high-demand and fast-growing occupations requiring a minimum of a bachelor's degree yielded the general conclusion that existing programs in Alabama colleges and universities will supply a sufficient number of graduates to meet the state's demand for many of these occupations through the year 2006. For reporting purposes, we grouped the results of 15 occupational demand analyses into three categories: (a) occupations where the supply of graduates is projected to meet or exceed demand, (b) occupations where the supply of graduates is projected to be insufficient to meet demand, and (c) occupations requiring further study.

Occupations Where the Supply of Graduates is Projected to Meet or Exceed Demand

The supply of graduates is projected to meet or exceed the demand for (a) general managers and top executives, (b) registered nurses, (c) elementary school teachers, (d) accountants and auditors, (e) engineering, math and natural science managers, (f) residential counselors, (g) preschool and kindergarten teachers, (h) physical therapists, (i) speech-language pathologists and audiologists, and (j) occupational therapists.



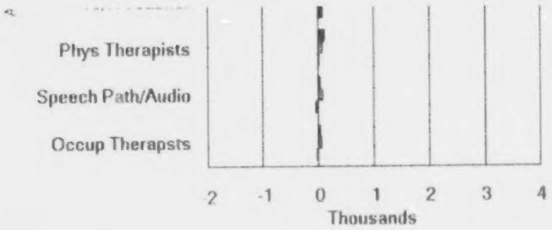


Figure 1. High-demand and fast growing occupations where the supply college graduates is projected to meet or exceed statewide need.

Occupations Where the Supply of Graduates is Projected to be Insufficient to Meet Demand

The supply of graduates is projected to be insufficient to meet the demand for (a) systems analysts, (b) special education teachers, (c) operations research analysts, and (d) computer engineers.

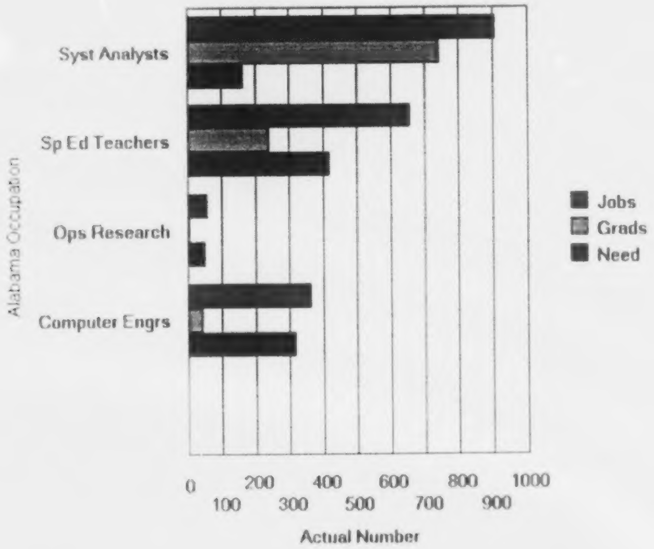


Figure 2. High-demand and fast growing occupations where the supply college graduates is projected to be insufficient to meet statewide need.

Occupations that Require Further Study

The supply of graduates and demand for secondary school teachers requires further analysis with respect to need in specific certification areas.

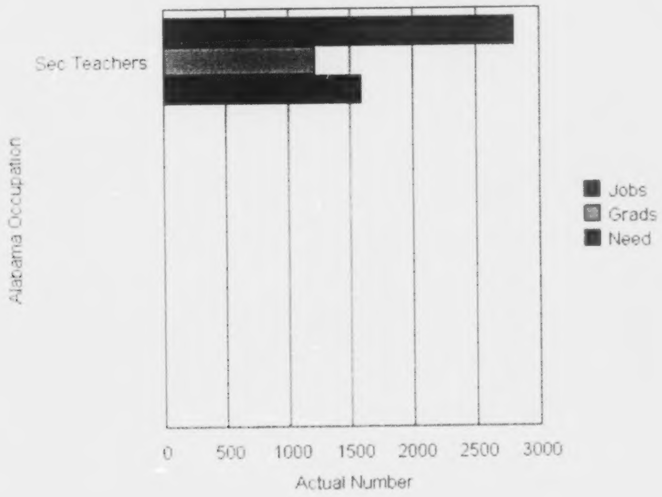


Figure 3. High-demand and fast growing occupations that require further study.

Discussion

We recommend three primary uses for an occupational demand model: (a) as a planning tool, (b) as a decision making tool, and (c) as a catalyst for collaborative initiatives.

Planning Tool

A model of occupational demand provides a valuable contextual base for statewide discussions of employment needs, and ways that higher education can address those needs. Although a demand model cannot provide absolute judgments on the need for particular programs, it can provide a starting point for asking the right questions. For example, we found that Integrated Postsecondary Education Data Systems completions in secondary education are not the best source for the available supply of teachers. Institutions can award teaching certificates without offering academic programs, and teachers may be certified through alternative routes. Therefore, degree completions surveys may underestimate the total number of certifications awarded. The Oklahoma State Regents commissioned the Southern Regional Education Board (1998) to conduct a study of educator supply and demand by type of certification. In Alabama, consultation with officials at the State Department of Education suggested that for the most part, Alabama produces more new teachers than local education agencies need, with the exception of areas such as special education, foreign languages education, and sciences other than biology. Given the difficulty of hiring foreign language teachers and the low productivity in many foreign language programs in the state, we need to formulate policies that lead to an understanding occupational needs and focus on solutions. State policy formulation should involve all stakeholders in meaningful deliberations (institutional representatives, the state coordinating board, the state department of education, business leaders, legislators, etc.).

Decision Making Tool

Individual institutions and state coordinating boards can use data based on an occupational demand model as a tool in making academic program decisions. The relationship between number of college graduates and occupational demand can serve as an important source of information for determining whether institutions of higher education are meeting the employee training needs of business and industry. If an occupation is identified as high-demand or fast-growing, and an institution's faculty express interest in developing an academic program in this field, they should consider the productivity of existing programs, and the potential productivity of newly approved programs. Several years ago the Alabama Commission on Higher Education approved three new master's level programs in physical therapy. When the new programs were included in estimates of future productivity, the supply and demand for physical therapists in the state was in approximate balance, even though physical therapy is projected to be a fast-growing occupation during the period 1996-2006. Institutions will be better able to allocate limited resources to appropriate programs when the regional productivity of existing programs is considered.

We view comparisons of occupational projections with academic program graduates as a focal point for discussion, rather than an absolute measure of need to continue existing programs or establish new ones. A complex decision, such as whether or not to close an academic program, requires broad- based judgments that include multiple components in the decision process, such as job placement of current students, emerging market trends, and research support (particularly at the graduate level). While research on occupational trends is an important information source, we view it as part of a larger decision-making framework.

Institutions can use the model to identify areas that are not currently being addressed by the educational system. For example, information technology (computer engineers, systems analysts) is an area where existing programs are not producing adequate numbers of professionals. Institutions may want to implement strategies to increase enrollment in existing programs or plan new ones. Another useful process is to identify high-demand and fast-growing programs that are not offered by any institution in the state. Finally, while the selection of an occupation is an individual choice, educational organizations can help consumers make informed decisions by providing valid information about the prospects for occupational employability.

Catalyst for Statewide Cooperative Initiatives

It is difficult for competing institutions to foster cooperative ventures, and collaboration is not the norm among institutions of higher education. However, an occupational demand model can identify program areas that are ripe for cooperative initiatives. Relationships can be encouraged through collaborative inter-institutional discussions and financial incentives, and cooperative programs can be established that benefit the state as a whole.

Other Influences

We used an occupational demand model to compare projected employment needs with statewide graduation rates as a metric for program resource allocation. We mentioned other influences on the demand model, such as the goodness of fit between occupations and academic degrees, variations in minimum educational job qualifications, migration of graduates to (and from) other states. In Alabama, there are graduates of out-of-state corporations that are not accountable to the Alabama Commission on Higher Education. These influences argue for using an occupational demand model as part of a broader decision-making process.

Notes

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Negotiated Learning: Union Contracts and Teacher Professional Development

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Abstract

In this article, I report the results of an investigation that examined the impact of teacher union contracts on the development of professional learning communities in schools. There are three primary sources of data used in the study: 1) 100 written teacher union contract documents; 2) structured interview data from 21 educators (school superintendents, principals, directors of staff development, and teacher union representatives; and 3) focus group interview data from educational leaders in schools. The analysis and discussion focus on five areas related to teacher professional development with implications for policy and practice: *explicit language* covering opportunities for teaching learning in their work; *governance* and *decision making structures*, that is, specific provisions covering wages, hours, and conditions of employment; the description of *legitimate* and *sponsored activities* for the professional development of teachers; and the *resources* supporting the on-going professional growth of teachers. The findings indicate that rethinking, restructuring, and organizational re-culturing in schools are initial expressions of a new unionism that has the potential to lead to the development of more powerful professional learning communities in schools.

Introduction

Among educational policy makers, researchers, and practitioners, there is an emerging consensus that teacher professional development is vitally important to educational reform as we approach the next millennium. In fact, it seems trite to assert that teacher professional development is critically important to school improvement focussed on enhanced student learning outcomes. Nevertheless, there continues to be a need to communicate the importance of continuous learning and development for educators, individually and collectively, to people in and out of schools. Without clearly articulated and documented evidence of its overall contribution to school success, professional development can easily become the victim of capricious budget cutting, or worse, be relegated to the scrap heap of educational fads and ephemeral educational elixirs.

The link between teacher professional development and union contracts is one that has been forged over decades of collective bargaining between teachers' associations and local school boards. "After all, unions are potentially powerful collaborators because they negotiate the allocation of time in school and define a teacher's official duty day and psychological work role relationships" (Kerchner, Koppich, & Weeres, 1997 p. 173). In additional to traditional areas of bargaining (wages, hours, and conditions of employment), recent school reforms and new political realities have forced teachers and school boards to re-examine their contractual relationships.

Though there are many dimensions of teacher union activities supporting teacher learning in classrooms, schools, and beyond, this study focuses only on written teacher contracts and their administration. I was particularly interested in knowing if the language in teacher union contracts stated explicitly, or reflected indirectly, the importance that schools, administrators, and teachers placed on professional development. The purpose of this study was to examine teacher union contracts and the impact of these agreements on teacher learning. The following questions guided the study. First, to what degree is teacher professional development explicitly addressed in the language of local collective bargaining agreements between school boards and teachers' unions? Second, in what way(s), if any, does contract language covering wages, hours, and conditions of employment influence teaching learning and teachers' capacity to improve their practice? Third, according to teachers and administrators, what aspects of contracts and their administration affect teacher learning and professional growth?

Background

Teacher Professional Development

Even the casual reader of educational reform reports, legislative mandates, and contemporary educational literature would soon discover one common theme—teacher professional development is critical to systemic educational reform and school improvement focussed on enhancing learning outcomes for all children in public education. These include calls to: create stable, high quality sources of professional development for teachers *(What matters most: Teaching for America's future, 1996*); incorporate teachers' learning into the fabric of teachers' daily life (Bredeson, in press*; Tomorrow's Schools of Education, 1995; Teachers take charge of their learning, 1996*); establish professional development as a central component of state and local educational reform (Houghton & Goren, 1995; Darling-Hammond & Sykes, 1999; Johansson & Bredeson, 1999); transform professional development to meet urgent educational needs (Corcoran, 1995; Porter, Smithson, & Osthoff, 1994); consider alternatives to traditional training models of staff development (Little, 1993; Sparks, 1994); deal more directly with issues of racism and inequity in schools (Weissglass, 1997); develop practices that support new conceptions of teaching, learning, and schooling (Lieberman, 1995; Loucks- Horsley, Hewson, Love, & Stiles, 1999; Hawley and Valli, 1999); effect behavioral change and improved practice (Osterman and Kottkamp, 1993; Guskey, 1995); and break the mold to classroom practices through new professional development practices (McLaughlin & Oberman, 1996).

There is a large body of evidence that identifies design principles for effective, high quality professional development. Developing guidelines for the design, delivery, and evaluation of outcomes is an important first step in the development of professional learning cultures in schools. Examples of these guidelines can be found in the *Standards for Staff Development* (NSDC, 1995; AFT, 1995; Darling-Hammond & McLaughlin, 1995; and Darling-Hammond & Sykes, 1999). The National Partnership for Excellence and Accountability in Teaching (NPEAT, 1998), for example, identified eight design principles based on current research and best practices in schools. The most effective professional development:

1. Focuses on analyses of student learning, especially the examination of differences between actual student learning outcomes and goals and standards for student learning
2. Involves teachers identifying their own needs and developing learning experiences to meet those needs
3. Is school-based and embedded in teachers' daily work
4. Is organized around collaborative problem-solving
5. Is continuous and on-going with follow-up and support for further learning
6. Incorporates evaluation of multiple sources of data detailing student learning and teacher instructional practices
7. Provides opportunities for teacher to link the theory that underlies knowledge and skills they are learning
8. Is connected to a comprehensive change process focused on improved student learning. (NPEAT, 1998)

Developing lists of design principles is important, but identifying them is generally much easier than implementing them effectively. The hard work comes in putting the design principles into practice with real people in the dynamic and complex environments of schools. Teacher union contracts provide an important lens for examining the organizational structures and dynamics of teacher professional development and work.

Defining the concept of professional development

The term professional development, ubiquitous in current literature, is often used interchangeably with such terms as staff development, in-service, skills training, and continuing education. I believe there are meaningful distinctions among these terms as well as conceptual limitations. To avoid confusion and to clarify the concept of teacher professional development, I have developed a definition grounded in research and current literature cited above. Professional development refers to *learning opportunities* that *engage teachers' creative and reflective capacities* to *strengthen their practice*. In this conceptualization, my intention is to highlight three critical dimensions of professional development. First, professional development has to do with learning opportunities. These may be formal or informal, individual or group, and be delivered in dozens of different ways. The important dimension, often assumed but not explicitly stated by many writers and practitioners, is that learning, not the activity, is the focus of professional development experiences. Thus, learning opportunities are not narrowly limited to discrete activities, events, or days on the school calendar. Second, if learning opportunities are designed to make a difference in the way(s) teachers think about their work and practice what they know, the learning opportunities must engage teachers' creative and reflective capacities. By this I mean these learning opportunities tap into teachers' natural inclination to reflect on, personalize, and transform new knowledge and skills in ways that fit their personal style as well as the context of their work. Osterman and Kottkamp (1993) describe the relationship between reflection and professional development. "Reflective practice is viewed as a means by which practitioners can develop a greater level of self-awareness about the nature and impact of their performance, an awareness that creates opportunities for professional growth and development" (p. 19). The third component of this definition is to strengthen teachers' practice. Billions of dollars are spent each year on professional development in the United States (NCTAF, 1996). This investment is made primarily because taxpayers, policy makers, and practitioners believe learning opportunities that engage teachers' creative and reflective capacities will deepen teachers' understanding of their work and ultimately lead to improved teaching practices that benefit children in schools.

Teacher Unions and Professional Development

> *Teaching has become the most unionized occupation in the United States, and local contracts now create a complex systems of rules that regulate labor-management relations* (Sykes, 1999, p. 240).

The legacy of industrial unionism. As the size of schools and school districts in the United States grew over the past century and half, primarily as the result of massive consolidation of school districts, it seemed only natural that the education sector would look to other sectors, business and industry in particular, for organizational models and principles that could be used in managing increasingly complex school systems. Based on principles of scientific management, educational decision making became much more centralized with, "power and authority accrued to school district headquarters (and, not incidentally, was lodged firmly in the hands of administrators)" (Koppich and Kerchner, 1999, pp. 317-318). So it was only natural that as teachers experienced and began to examine their formal working relationships with local school districts, they too looked to industrial examples for guidance. "Thus, both the AFT and NEA modeled their operation on the unions that had served American factory workers so well in the post-World War II period" (p. 317). Early on in the developing relationship among teachers, school boards, administrators the parties met and conferred on issues of interest to teachers in what Kerchner and Mitchell (1988) characterized as first generation unionism. From this first generation of unionism, we now have 34 states with collective bargaining laws that govern the relationship between teachers and their school districts. By the late 1950s the formal relationship between teachers and school districts entered a second generation of unionism steeped in "good faith" collective bargaining where wages, hours, and conditions of employment became the focus of teachers' interests through the written contract and management (e.g., school boards and administrators) retained control of policy and operational decisions in education. "This presumed bifurcation of union-management interests is reinforced by the statutorily restricted scope of bargaining. State laws define those issues about which union and management can bargaining and those that are excluded from negotiations" (Koppich and Kerchner, p. 318).

Various change forces and challenges in education over the past half century moved teachers and school districts from first generation unionism to second generation unionism characterized by distributive negotiations where, "Bargaining is about dividing up the spoils—money, rights, power—and carrying them away" (p. 319). Recently, educational reform initiatives accompanied by increasing demands for school district/teacher accountability for student learning outcomes have moved teachers' unions and school districts to rethink the traditional boundaries on their working relationships codified in collective bargaining agreements. In addition there are a number of exciting, substantive changes in teacher education and professional development that challenge teacher unions, administrators, and local school districts to rethink their relationship to professional development (Kerchner et al., 1997).

Linda Darling-Hammond (1998) argues for research that more closely examines connections between educational reform and teacher professional development. "To build lasting support for change, research about successful professional development initiatives needs to be translated into policies that will penetrate widely and comprehensively. These would include policies that influence school finance, salaries and incentives, preparation, recruitment, and retention of well- qualified teachers" (p. 13). Most likely, the translation of this research will be formalized in policies and practices that are closest to teachers and their work. These clearly include local collective bargaining agreements between school boards and teachers unions as well as a wide variety of side agreements, school/policy manuals, and other written documents governing these relationships.

New Unionism. So what does this new unionism look like? To begin, there is substantial evidence that teacher unions have long been involved in socializing and supporting teachers in local school district. "Teachers' organizations participate in teacher socialization through a variety of means. First, they help set many of the terms for teachers' work and learning in the larger district through collective bargaining, including the scope of legitimate teaching activities within and beyond the school day, the nature of and expectations for leadership positions, participation in decision-making, and opportunities for professional development" (Bascia, 1999, p. 12). She makes the case that in school systems where teachers do not receive sufficient support for their teaching, teachers' organizations through a wide variety of supporting activities and structures are, "increasingly are filling in the gaps resulting from educational policies that assume unrealistically simplistic, technical vies of teaching and policy implementation" (p.3).

More formally, there are at least three general strategies teachers' unions and school districts have employed to move toward more collaborative bargaining in which unions and management are seeking common ground to deal with issues of mutual interest and benefit. "The parties treat each other as professionals and consciously consider the issues that are important to both and the trade-offs each side can accept. It is this conception of negotiations that has given rise to locally based union reforms" (Koppich and Kerchner, 1999, p. 319). These include: 1) *joint committees* that, "expand the portfolio of the negotiated agreement and move substantive discussions of education policy and practice beyond the legally restricted scope of bargaining;" 2) *trust agreements*, "legally binding bilateral accords that sit outside the collectively bargained contract;" and 3) *waivers*, specific provisions or requests that allow school districts and teachers' unions to request relief from specific provisions or parts of the existing collective bargaining agreement (p. 320).

Despite the promise of these locally based efforts, Koppich and Kerchner (1999) view these as mere tinkering at the margins of traditional unionism that, "no matter how faithfully conducted and thoughtfully executed, have failed to move unions and districts much beyond the education reform starting gate" (p. 321). They argue that, "Teacher unions have organized teachers' economic lives and brought stability to working conditions. Now they have an opportunity to lead the transformation of education by embracing a new set of first principles of unionism: organizing around quality, organizing around schools, and organizing a flexible teacher labor market" (p. 321).

Though there are a number of positive aspects of the new spirit of unionism around issues of educational reform and teacher learning and growth, there are critics especially when the results in public policy tend to be limited to bilateral agreements between teacher unions and school districts. For example, Cibulka (1999) points out how conservative critics argue that teacher unions already have an inordinate amount of influence in schools and that their highly vested special interests may turn negotiated policies and agreements into documents that, "run public schools for their own benefit and inculcate their own values" (p. 173). Joseph Murphy (1999) describes the impact of new unionism and compacts on consumers of public education. "Public sector unions in particular are key instruments in the growth of bureaus and concomitant subordination of consumer interests to the objectives of the employees themselves. Ramsey (1987) concludes that when the economic influence of unions is combined with political muscle, public sector unions have considerable 'ability to tax the rest of society'[p. 97]" (p. 411). Finally, Joel Spring (1993) advises caution in the expansion of language in teacher union contracts to include such non-economic policy matters as professional development. He argues that expanding union contract language into such areas as professional development may have unintended negative consequences. For example, union influence in noneconomic areas often reduces public control, limits administrator influence (especially that of principals), results in overly formal and complex governance and practices around teacher development, and may negatively influence district and school decisions about resource allocations and educational policy by supporting the interests of teachers over those of students and the community.

Methods

Data collection

To address the research questions, I collected and examined three sources of data: 1) written collective bargaining agreements; 2) interview data (n=21) from superintendents, principals, directors of staff development, state teacher association administrators, and teacher union presidents; and 3) focus group interview data.

Collective Bargaining Agreements. There are 427 local school districts in the state, each with a negotiated master agreement between the local school board and teachers' association. Teachers are represented by local affiliates of the National Education Association or the American Federation of Teachers. School districts ranged in size from 101,000 students to fewer than 100. Given this range and because I believed school district size may significantly influence the history, content, and administration of contracts, I used a stratified random sampling procedure consisting of four strata to select 100 school districts. Because small town and rural school districts represent over 62% of all school districts in the state, I wanted to make sure that adequate samples of suburban, small city, and urban districts' contracts were represented in the study. Accordingly, I defined the four strata for the selection of contracts based on total student enrollment for the district. Group 1 (2501 - 101,000); Group 2 (1001-2500); Group 3 (501-1000) ; and Group 4 (500 or fewer students). Using a random numbers table, 25 districts were selected from each of the four groups. The equal "N" per strata does over represent surburban, small city, and urban districts in this predominantly rural state. This sampling strategy does introduce a possible source of bias. However, if anything, the sampling strategy under estimates the generally traditional unionism in the state and was viewed as an acceptable trade-off to assure adequate samples of contracts in surburban, small city, and urban school districts.

Next I collected copies of the latest negotiated contract for each of the identified school districts. It is important to note that at the time these contracts were collected and analyzed not all contracts had been renegotiated. Because of state imposed revenue caps on local school districts limiting salary and fringe benefit for teachers, a number of local collective bargaining agreements had remained unsettled. However, because the primary issue contributing to various impasses between school boards and teacher unions was salary, provisions related to teacher professional development generally were not affected. Even though a number of districts were operating under expired contracts, all contracts examined during this study were the existing legal agreements that governed wages, hours, and conditions employment for teachers.

Structured Interviews. The second phase of data collection consisted of 21 structured interviews with superintendents (n=5), principals (n=5), teacher union representatives (n=4), directors of instruction (n=5), and staff development specialists (n=2). First, I identified criteria for the selection of informants. These included 1) expertise and experience in teacher professional development; 2) leadership position held in the organization; 3) employment in districts representing diversity in size, student characteristics, and location (rural, suburban, and urban); and 4) employees in districts with exemplary professional development practices supported in contract language. Key informants were identified using colleague nomination and purposive sampling. Using names of individuals identified by teacher union representatives, teachers, principals, and other administrators, I used the four criteria to select the 21 respondents.

Based on initial analysis of written contracts, an interview protocol was developed to gather more detailed information on the influence of specific contract language and provisions teacher professional development in local districts, to describe in detail issues around contract implementation and professional development, and to ask respondents to describe any changes they may have experienced in teacher unionism and opportunities for professional growth and learning in their schools/districts.

All interviews were taped and transcribed for analysis. To build trustworthiness in the data, written transcripts were returned to interviewees for review and editing if needed. Each respondent was asked to review the transcripts and to make any changes that he/she thought were necessary for purposes of clarity or intent. In general their corrections were editorial in nature. Several respondents, upon seeing their responses in writing, wrote back that they were somewhat surprised, and in a few cases embarrassed, about the lack of clarity in their interview responses. However, neither offered clarification in their corrected transcripts.

To enhance credibility, after the first two phases of data collection and initial analyses of written contracts and interview data, I conducted a focus group interview with a second set of key informants (n=5) that included an assistant superintendent of a large urban district, an urban middle school principal, a director of research and professional development for a state teachers' association, a special education teacher, and a teacher/union representative. Using a preliminary set of organizers from these data, the purpose of the group interview process was to check initial categorizations of data against the experiences and insights of practitioners, to gain a better understanding of issues and their implications, and to identify any areas not adequately addressed in the examination of union contracts and teacher professional development.

Data Analysis

Data analysis consisted of two parallel activities. First, a content analysis of 100 written collective bargaining agreements was completed. The analysis focussed on an examination of such areas as specific references to professional development, structures and decision making governing teacher development and learning, types of professional development activities legitimized in contracts, and resources available to support professional development. For the purposes of this study, content analysis focussed exclusively on the formal written contracts that governed teacher work and professional development.

To begin the content analysis, I looked for any language referring to teacher learning opportunities and professional development. This included such terms as in service, staff development, training, conferences, and study leaves. This initial phase of analysis runs counter to my conceptual definition of professional development detailed in the background section of this paper. Having said that, this is my conceptualization of professional development—not necessarily the one commonly used in schools and enumerated in written contacts. Also, teachers, administrators, and school boards members often use a variety of terms interchangeably when they refer to the concepts of teacher learning and professional development. For me, it was important to start with the language that currently existed in written collective bargaining agreements and in practitioners' ordinary professional discourse. For interview data I used a constant comparative method (Strauss & Corbin, 1990) to code data and identify themes. Individual and group interview data complemented the document analysis by providing details and examples of how various contract provisions affected the context of teachers' daily work and their professional learning.

Limitations

Focusing on written collective bargaining agreements alone has limitations. For example, there is more to negotiated agreements between teachers and school boards than what is written explicitly in contracts. Trust agreements, waivers, joint committee work, and district and school policy manuals are examples of other written documents that describe and affect these teacher union/school district relationships. Collection and analysis of these documents were beyond the scope of this investigation. To mitigate the negative aspects of this limitation, I believe the collection of interview data was helpful. A second limitation concerns the selection of interviewees. Though great care was taken to define and select a substantively representative sample of teachers, administrations, and union representatives, there is always the possibility that the sample does not adequately represent all parties to teacher/school district collective bargaining agreements. Notably absent from the interview sample are school board members. Though important to the negotiation of contracts, the study focussed on existing written contracts and their administration which in most school districts is left to teachers and administrators in schools.

Findings

I use four organizers to present detailed descriptions of the links between and implications of union contract language and teacher professional development. These are 1) contract language and points of leverage; 2) the inclusion of professional development in written contracts; 3) the governance of teacher professional development; and 4) changing the professional development paradigm: rethinking, restructuring, and reculturing.

Contract Language and Points of Leverage

Despite the rhetoric in educational reform reports that teacher professional development is critical to school improvement and reform efforts, explicit language on professional development is notably absent in approximately three fourths of the contracts examined. Using the widest possible net to capture any language and/or activities related to teacher professional growth and development, only 28 of the 100 contracts examined contained any direct reference to teacher professional development. Of these 28, only 3 linked professional development to district goals and priorities. The finding that teacher contracts are generally silent on professional development should not be surprising since it is not a mandatory subject of collective bargaining. Only recently have examples of localized reform efforts, waivers and trust agreements, affecting the contractual relationship between teachers and school districts emerged. Yet it is difficult to imagine how language covering wages, hours, and conditions of employment would be unrelated to teacher professional development. In general, even teacher collective bargaining agreements with explicit language governing teacher professional development tended to remain narrative museums reflecting a legacy of conflict, mutual mistrust, legalism, and top-down hierarchies of control over teachers rather than expressions of a new unionism. The following are examples of explicit contract provisions describing teacher professional development primarily under the direct control of administrators.

- The parties agree to establish an In-Service Educational Staff Development Committee composed of a representative appointed by the Association from each school and no more than an equal number of representatives appointed by the Superintendent of Schools. The Committee shall assume the responsibility for the planning and conducting of the in- service and staff development programs for the professional teaching staff, subject to the direction and control of the Superintendent.
- Teachers must fulfill twenty-two and one-half (22 1/2) hours of staff development each year. The District may direct up to seven and one-half (7 1/2) hours of specific staff development for designated teachers or groups of teachers.
- As required by [... Law], there shall be a regular and continuing in-service program which shall be formulated by a standing committee composed of administration and faculty members.

In a few districts the teachers' union and school board have negotiated language, in accords or waivers, that recognizes teachers' responsibility and control over their own growth and development.

- The parties to this ACCORD recognize the importance of individual growth and development of professional educators and the growth and recognition of teaching as a profession. Professional educators are responsible for continued professional growth through participation in staff development activities, formal academic study, and personal enrichment in their teaching field and in education in general.
- Acknowledgment is made of the need for professional growth and the consistent need for all teachers to continue their formal studies and other related professional activities toward an

improved and up-to-date quality instruction. It is also recognized that professionalism is an individual decision for teachers and, therefore, there is no credit requirement within in any specific time period.

- Teachers are encouraged to continue their professional growth at their discretion.

Collective bargaining for teachers has been a part of state statutes since 1959. Reflecting what Kerchner described as second generation unionism, the emphasis in the early days of teacher collective bargaining centered on increasing salaries, broadening benefits, and salary equity. With regard to salary equity, unions sought to eliminate capricious, unilateral school board decisions around teacher pay and benefits. What's clear in an examination of these written contracts is the legacy of these early bargaining days when two important principles around teacher compensation and career advancement were established. The first was the establishment of a legal process for negotiating teacher pay. The second was the development of a salary schedule that recognized years of teaching experience and advanced educational training as criteria for salary increases. The latter is particularly important. Even during years when increases in base salary were small, teachers could still increase their salaries through professional training and the accumulation of credits or the completion of an advanced degree. Thus, linking salary increases to advanced training provided an extra incentive supporting on-going professional development for teachers. This typifies the type of win-win compromise often negotiated by two parties during collective bargaining. Advanced training became the solution to satisfy teachers' demand for higher salaries and school boards' desire to have highly qualified and better trained teachers.

Leverage Points in Teacher Contracts.

Notwithstanding the silence surrounding teacher professional development in most union contracts, there are a number of negotiated provisions, leverage points, that directly affect teacher learning in the work place. For example, extra contract days, designated in-service days and times on school calendars, hiring new staff, the orientation of probationary teachers, teacher evaluation procedures, credits for recertification, and extended contracts are leverage points in contracts that support teachers' professional development. Interview respondents described how various provisions covering teachers' hours and work days at times limited what principals and their professional staffs were permitted to do contractually, especially as they worked to develop standards-based school reform.

Many of these limitations must be viewed within the context of broader political issues at the state level. In particular, the tension described by interviewees most often reflected teachers' frustration with currently state-imposed caps on teachers' salaries and fringe benefits. To control costs in education, in 1994 the legislature instituted a revenue cap of 3.8 % of the previous year's budget on all local school districts. The only way a school district could exceed the revenue cap was to go to a public referendum asking to exceed the cap. In effect, teachers' salaries were severely limited.

Cost controls have also influenced teachers' preferences and choices of professional development opportunities as well as its design, delivery and content. With severe limits on their salaries, teachers tend to view advancement on the salary schedule through rapid accumulation of graduate credits as one of the only ways to increase their salaries significantly. Interestingly, this strategy by teachers has implications for calculating the total cost of professional development. When salary increases due to advanced training are included as costs in annual professional development budgets, the percentage of the total budget used to support on-going professional learning increases dramatically. Additionally, since the revenue caps are on the total budget, savings in the budget must come from other expenditures. Analyses of written contracts and interview data indicated that the resources used to support professional development activities typically fund a vast collection of fragmented, individualized experiences with little evidence of a systemic focus on district or building goals.

A second leverage point in contracts influencing teacher professional development is in the area of teacher leaves. Besides sick leaves and those leaves for emergencies, family and extenuating circumstances, 72% of the contracts contained provisions for professional leaves, study leaves (36%), and personal or sabbatical leaves (52%). In most cases, these leaves were unpaid. Less than a third of these contracts required teachers to return to the district after the leave. Only 13 districts provided any financial support for professional leaves. The following language illustrates clearly how this provision in the contract supports teacher development.

> *Extended Leaves of Absence: Advanced Study*
> Purpose: The underlying philosophy of the leave is to increase the quality of teaching and to gain enriching and broadening experience by professional study and research in areas that will promote the employee's teaching ability. Major consideration must be given to the benefits which will accrue to the pupils and to the community through the individual teacher's personal growth.

In 77 contracts, extra days and extended contracts were another important leverage point that supported teacher professional growth and development. Administrators, school board members, and teachers agree that school success and improvement require on-going training and development opportunities for teachers. However, teachers' work days provide little time for extensive training or for school improvement work. Thus, extra paid days/hours and extended contracts for summer work have become critical to meeting the training needs of teachers and professional work beyond the classroom. Aligning district curriculum to new, state- mandated curriculum standards and tests, the introduction of new technologies, sundry educational reform initiatives, and more diverse students populations, to name a few areas, all require more teacher training.

Analysis of school calendars attached to these contracts provides evidence that districts recognize the importance of time needed for teacher professional development. This includes inservice days, early release and late starts, and teacher convention days. Ostensibly these times and days have been set aside for teacher inservice throughout the year. Most districts have 1-2 days per year while a few have schedules with weekly early release giving teachers 2 hours for joint work, planning, and professional development. At first glance, the number of days and times suggest that districts through negotiations have taken seriously the call to provide more time for teacher professional development. However, on closer examination it appears that in many districts the days set aside for teacher in-service and development opportunities have been hijacked. For example, administrators often convert these days, especially those scheduled the first day of the year, into extended faculty meetings to cover district/school business. These days are what Bredeson and Johansson (1999) refer to as "information showers" where the focus is on the dissemination of information, not teacher learning and growth. Similarly, teachers wanting and needing more time pirate inservice days and times to work alone to set up their rooms at the beginning of the school year, to complete grades at the end of quarters and semesters, and to clean out their rooms for summer breaks.

A fourth important leverage point in written contracts is in the area of supervision and evaluation. In 21 contracts, teachers and school boards had created alternatives to traditional classroom observations and written evaluations of "stand-up" teaching performance. In these districts, teachers who completed their probationary years, usually 1-3 years, could choose a self-designed professional improvement/growth plan as an alternative to traditional evaluation. In cooperation with principals and supervisors, teachers submitted professional growth plans and goals that became the primary basis for their written performance evaluation required by law once every three years.

The Inclusion of Professional Development in Contracts

Given the small number of contracts that contained explicit language on teacher professional development (28%), it was important to ask respondents their views on whether or not contracts should contain such provisions. Twenty of the 21 interviewees and all of the focus group interviewees (5) agreed that teacher professional development should be part of union contracts. First, opportunities for teacher learning in school and beyond are linked to wages, hours, and conditions of employment, all mandatory subjects of collective bargaining. To these respondents putting explicit language in contracts about professional growth and development in contracts was needed to send a powerful substantive and symbolic message to the whole school community.

The general agreement among respondents that language on professional development needed to be put in contracts was not seen as a silver bullet to improve the design, delivery, and outcomes of teacher professional development in schools. As one principal put it, "I mean it's probably ok, what we have in here, but...umm.... I think when you can establish the right the culture in a given school and school district, these things get taken care of ....ah.... far beyond the letter of what's in the contract." Another principal added, that the improvement in learning opportunities for teachers in schools needs more than just a line or two in the contract. Establishing strong norms and beliefs about on-going professional learning in order to improve student learning was not something, however, that could be easily specified in contract language. "I think it [is a matter of being] pertinent to their [teachers'] reality." "And I think how you just embed that in the everyday work, just spills over so naturally, so that these don't even get looked at us requirements." The respondents agreed that teacher professional development should be included in negotiated agreements. They also believed that the key to successful staff development for teachers was instilling the belief that the time and effort put into the learning activities would directly benefit their practice and improve student learning. They believed putting language in contracts would help to highlight the importance of teacher learning to school improvement and student learning.

The consensus to include professional development in contracts was not without some notes of caution. For example, some respondents worried that teacher growth and development might fall into grievance processes and thereby be rendered ineffective. Others worried that by specifying professional development in the contract some school boards and teachers' unions might bargain away what should be a professional responsibility and attitude among teachers, not forced compliance to the strict letter of the contract. One director of instruction cautioned, "What you have to be careful of is not to use that and end up reducing it [professional development] to, like the lowest ..... lowest common denominator." Another respondent echoed the idea that if teacher professional growth and development described in contracts became overly prescriptive, such as traditional district in-service, there would be much less flexibility and fewer opportunities for teacher learning in school and beyond the teaching day. In assessing the benefits of putting explicit language on professional development in contracts, these educators also acknowledged the potential downside if contract language resulted in narrow, prescriptive provisions. Such provisions would likely lead to minimalism and mere compliance rather than fostering possibilities for professional learning; this would be worse than what many districts/schools already had.

Governance of teacher professional development

Analysis of the contracts and interview data revealed that professional development for teachers continues to be top- down and primarily controlled and driven by administrators. Only 3 of the 100 district contracts examined stipulated a full-time coordinator for professional development. For mid-size and larger districts, staff development fell under the general job duties of curriculum directors and assistant superintendents. In smaller districts, the superintendent controlled the budget and was seen as the gatekeeper for professional development. Regardless of district size, school principals were most often viewed as the person primarily responsible for professional development. Further examination of contracts indicated that only 17 districts had formalized in contract language district staff/professional development committees composed of teachers and administrators. Given the general absence of professional development language in contracts this may not be surprising. Yet, even in contracts where extra pay for extra duties was described, staff development committee work or membership was not included.

In general, the lack of voice for teachers in decisions around their professional growth and development has resulted in a type of dependency. As a middle school principal opined, teachers continue to think others, administrators in the district, will tell them what to do. Thus, there is a fair amount of cynicism about the value of traditional professional development in districts. One principal saw this type of dependency as professionally debilitating because it has resulted in some teachers not even being able to imagine what it might be like to be responsible for planning, implementing, and evaluating their own professional growth. Principals believe they have primary responsibility for teacher professional development, but in a supportive role not a controlling or limiting one. Principals believed they had the responsibility and ability to garner the resources, time, money, space, expertise, and other resources to support what teachers needed to enhance their learning and performance. Principals saw their primary responsibility as helping teachers, individually and collectively, keep their eyes on the big picture. The principal's role was to help align individual and collective teacher needs and interests with school priorities and goals.

Changing the professional development paradigm: Rethinking, Restructuring, and Reculturing

When asked to think about changes they had experienced in the past 10 years in the area of teacher professional development, the respondents' comments were a mix of optimism and disappointment. Each respondent could point to specific examples of positive changes in their schools and districts in the area of teacher learning and professional growth on the job. However, most were also concerned that traditional obstacles remained, many seemingly intractable. To improve opportunities for teacher professional development, these educators identified three broad areas of change that need to occur concurrently. The first is *rethinking* the current professional development paradigm. The second is *restructuring* the design, delivery, content, context and expectations for outcomes of teachers' professional development. The third is *reculturing* schools and communities in ways that create and nurture opportunities for on-going, job-embedded teacher growth and professional development.

Rethinking the professional development of teachers. Changing the paradigm of teacher professional development requires fundamental shifts in the ways teachers, administrators, and community members think about its nature, purposes, and goals. To begin, respondents agreed that professional development should not be seen as an add-on to teachers' work but rather an essential part of what teachers do as professionals. Because training and development are essential to teachers' professional practice, the resources that support them should not be easy targets for budgetary cuts during fiscally tight times. The constellation of formal and informal opportunities for teachers to learn and to improve their professional craft is crucial to school improvement and student success. Thus, in-service, staff development training, teacher networks, and collaborative inquiry are not just about teachers, they are linked tightly to and aligned with school goals and student learning.

The ways in which teachers and others talk about teacher professional development also requires some re-thinking. When in-service days or early releases are described as "time-off" or "wastes of time" from teachers' real work, e.g., direct contact with children, such expressions communicate the limitations and persistence of the traditional professional development paradigm. Teacher professional development is legitimate work even when it occurs during the school day. Staff development is "time on" not "time off."

Another change in thinking is conceptualizing on-going learning and development as a professional responsibility. Continuous learning is an essential part of one's professional practice, not just a scheduled event or an activity to simply attend and endure. The artificial separation of teaching practice and teacher growth and development has contributed to the latter. To improve what they do and how they do it, reflective teachers rely on their daily teaching experiences to learn more about their practice. Traditional school structures and cultures, especially self-contained classrooms, have unfortunately tended to reinforce teacher isolation and individualism so that the benefits of reflective practices remain limited to a few individuals rather than becoming part of organizational learning and improvement. In addition, the objectification of professional development as something "out there" has promoted a type of dependency in teachers often leaving them voiceless in planning, implementing, resourcing, and evaluating their own learning. "It's completely foreign to them [teachers] because they've really had no opportunity to ever have any input on anything." So teachers wait to see, "What's the principal or learning coordinator going to tell us to do? What is the district telling us we have to do today?" (Middle school principal). Though teachers clearly have preferences and know what would be most helpful to them in the classroom, traditional designs and delivery of teacher professional development in schools often reinforce a dependency model in which teachers cede responsibility for their own growth and development to others: most often superintendents, principals, and staff development personnel.

Rethinking teacher professional development also means reconsidering the "one size fits all" training and inservice activities common in many school districts. In complex school systems there are occasions for system-wide informational sessions and inservice programs. The key issue is whether or not these types of activities dominate staff development activities in schools. Because these activities are easier to plan, more economical, and more easily controllable, districts frequently default to "one size fits all" sessions. Undifferentiated training sessions rarely provide learning opportunities that engage individual teachers' creative and reflective capacities to strengthen their practice.

Restructuring the professional development of teachers. "We haven't admitted that we're going to have to blow the thing up in order to get real fundamental professional development in the system." Either metaphorically or concretely, changes in thinking about teacher professional development need to be accompanied by fundamental changes in the structures that support it, including provisions in contracts. For example, respondents described how schools and their operations need to be reconfigured to permit more time within the school day for teacher learning. As one respondent said, "A couple of things are happening that I think damage our opportunities to really change things in a significant way. One is the issue of the structure of the school day, the school week, and the school year. There is no collaborative time structure in our work. And, teachers are too isolated in their work. That we have to really redesign the system in a way that guarantees that the time is there for collaboration; and I don't think this society is willing to pay for that, and that's been our big problem" (Professional Association Representative). The issue of restructuring time, with a focus on the use of time and its impact on conditions of employment, has important implications for collective bargaining and opportunities for teacher learning within contract days.

Time was described by respondents as the most important structural factor that needed to be addressed in order to change the current professional development paradigm. In a few written contracts there are appended waivers and side- agreement that supported changes in the use and structure of time in the teacher's work day. The interview data provided ample evidence that a number of schools and districts were using collaborative informal agreements, between administrators and teachers, to address teacher learning in newly configured time-frames. This includes such practices as 1) providing teachers extended contract days over the summer; 2) extra pay for committee work that is beyond ordinary teacher work expectations; 3) hiring substitute teachers, both permanent and temporary, so that teachers have time during their the school day to meet and work together; 4) early releases and late starts for students; 5) scheduled staff development days; 6) creative use of class time through block and flexible scheduling; and 7) banking time, e.g. increasing class periods and school days several minutes a day to bank time for future release times.

According to these educators, even when time is available there may not be a place in the building for teachers to meet and work. Outdated buildings, the proliferation of programs and specialities to support students beyond the classroom, and overcrowded schools often leave teachers in hallways or other cramped spaces, hardly optimal conditions for professional learning. Clearly this is less of a problem when students are released, but if professional development is to be embedded in teacher work, creating learning spaces for teachers is an important part of restructuring schools. Providing physical space for teacher learning in schools also sends a powerful symbolic message about the importance of continuous growth and development in schools. Conferences rooms, office space, work rooms, labs, and basic communication tools (computers, telephones, and fax machines) are minimal requirements for any professional, yet these tools are scarce in most schools. Additionally, the lack of these basic resources to support teacher engagement, reflection, and growth reinforces norms of privacy, isolation, and dependency that threaten the development of an authentic professional learning community.

The reallocation of resources to support new conceptualizations and practices in teacher professional development is also an important element in restructuring. In some districts, teachers and administrators have creatively knitted together a mix of local, state, federal, and private monies to support professional development and school change processes. In others, however, the patchwork of traditional development programs and activities, and the budget lines to support them, are not clearly aligned with district/school funding priorities. Because of revenues caps in the state, most districts are actively seeking external grants to support staff development for teachers. In some districts, it is unimportant what the focus or goal of the funding agency is. They become "Christmas tree districts" where teachers, administrators, and school boards willingly subordinate local priorities and goals for high profile programs that send extra dollars to support teacher development and training opportunities. When the typical three-year funding cycle ends, so does the initiative. The district then reinvents itself in order to respond to new criteria described in another request for proposal (RFP).

New state mandates, especially the newly adopted model academic standards linked to legislated testing of all students, have intensified change efforts and completely dominated staff development and in-service training across the state. A union representative from one suburban district noted, compliance with these state mandates, especially activities focussed on curriculum alignment and organizing for testing in four core areas, is robbing teachers and their schools and districts of what little time, energy, and resources that had already been set aside for professional development.

Selecting and hiring teachers with a professional orientation toward their own growth and development was cited by principals and superintendents as an important structural piece that supported teacher professional development. The administrators believed one of their primary responsibilities was to establish criteria and develop processes that enabled their districts/schools to identify and hire candidates who viewed continuous growth and development as an essential part of their professional work and one for which teachers took responsibility.

Restructuring the delivery of teacher professional development is also critical to changing the current paradigm. Long dominated by workshops and fragmented in- service meetings, new forms of professional development have emerged with "a much deeper and more sophisticated focus on instruction." The idea of "one size fits all" is fading away. In districts with leading edge practices, teacher professional development tends to be more localized, more centered on individual teacher needs, carried out in interactive and participative settings, and is on-going and long-range in focus as opposed to one-shot presentations and events. Such practices are beginning to break down teacher isolation and build learning communities among professionals seeking to improve their practice, not simply acquiring a few "nuggets of knowledge" for easy transfer to classroom teaching. Teachers and principals are attempting to redesign the school "Culture, climate...ah...the way we structure our interactions, so that it's supporting people's learning everyday."

Reculturing teacher professional development. "It's not in the culture of our district to have the union talking about professional growth and development. The way of talking about it is through compensation" (Elementary principal). Rethinking and restructuring teacher professional development are part of the larger process of reculturing schools and communities to support teacher learning. As the preceding quote indicates, the values, beliefs, and practices that define the current culture of teacher professional development may be anything but professional. For example, teacher isolation, work days with little or no time for professional development, administrator dominated planning and decision making, and fragmented staff development and training activities typify the current culture. "The system needs to be redesigned for teachers to really become active learners. Our structure does not facilitate that." (Teacher union representative). Typically, teacher work has been defined as standing up in front of and working directly with children. Working directly with children is difficult to argue against since teaching children is the primary mission of schools. The reculturing efforts described by these respondents are meant to enhance teachers' work with students by recognizing and incorporating teacher professional development " as professional work" and "at work". In recultured professional learning communities, staff in-service and training days are not days off, they're days on. The ways in which teachers and others talk about teacher staff development are expressions of reculturing that communicate important values, norms, and practices that characterize high quality, professionally oriented schools focussed on student success.

The ways in which school boards and teacher unions address teacher professional development in collective bargaining also help to define the culture. With nearly three-fourths of the contracts silent on teacher professional development, developing new professional learning cultures will not come easily. The baggage of traditional unionism, collective bargaining experiences, and grievance arbitration in schools has left both parties, teachers and school board, nervous about asking the other to dance. As one union representative put it, "Nobody knows how to behave." Learning how to "behave" requires trust between parties to negotiate agreements. In districts where new professional development cultures have emerged, values, norms, and practices are simply embedded, "In the everyday work, [and] just spills over naturally, so that these don't even get looked at as requirements. I think when you can establish the right culture in a given school and school district, these things get taken care of..ah.. far beyond the letter of what's in the contract" (Elementary Principal). Establishing norms of trust requires time and experiences that build on joint commitment and efforts among teachers, their unions, administrators, school board members, and the community. To date, in only a small number of districts have teachers and school boards redefined and renormed their formal contractual relationship.

Conclusion

There are numerous challenges confronting stakeholders in public education at the end of twentieth century. Among these is whether teachers and local school boards will be collaborators or combatants as they confront a seemingly endless array of problems. Perhaps one way to build a bridge to "new unionism" and leave behind the baggage of adversarial collective bargaining is through the development of professional learning communities in schools. Successfully negotiating the uncharted terrain of these learning communities for students and teachers requires good will, trust, and the commitment of teachers, administrators, and school boards to work together.

Leadership is critically important to the direction and designs for new unionism and the growth of professional learning communities in schools. Though not exclusively, much of the move toward new unionism will come through formal contract bargaining, as well as policy initiatives, side agreements, and negotiation of daily work in schools. The risks involved, the creativity required, and the mechanics of living these newly forged relationships among school boards, administrators, teachers, and the people they serve require leadership at all levels—policy making, contract bargaining, administration, and teaching and learning in classrooms. Issues surrounding teacher professional development, the focus of this study, will be important ones as teachers, school boards, and other key educational stakeholders renegotiate formal and informal relationships in schools.

As the findings in this study indicate, shifts in thinking, structures, and organizational cultures are the initial expressions of new unionism and the development of teacher professional learning communities. These data indicate that most school districts in this state are still at the proverbial "starting gate" of new unionism. Local experiments are beginning to emerge. However, the transformation to what Koppich and Kerchner (1999) describe as new unionism centered around such organizers as quality, localism, and flexibility in the teacher labor market remain distant. The movement toward a new generation of unionism and professional relationships in schools, though slow, continues to advance. The findings from this study on union contracts and teacher professional development suggest a number of areas in which teacher unions and school boards can initiate this collaborative venture, though the legacy of second generation unionism is deeply rooted in school districts across the state.

First, the language used to describe teachers' professional development and their work is important. Based on the beliefs of respondents in this study, highlighting the importance of professional learning in negotiated agreements has both symbolic and substantive power. However, contract provisions and explicit language are not substitutes for actions and practices embedded in the daily work of teachers, principals, and others that nurture and support authentic professional learning communities. Second, the current professional development paradigm is not anyone's the fault. It's the result of a shared history. There are a few examples of joint committees, trust agreements, and waivers, developing at what Koppich and Kerchner (1999) call the margins of union transformation. However, I believe these early experiences within schools and districts in the area of teacher professional development provide opportunities for trust and confidence to develop among educational stakeholders and parties to collective bargaining agreements. It is on these experiences that dramatic changes in unionism and teacher professional development in schools will occur.

Creating professional learning communities that support and encourage teacher professional growth and development over a career will require fundamental shifts in the current paradigm of teacher professional development. Concurrently three streams of change, that resonate with the principles of the most effective professional development practices need to be negotiated between teachers and local school districts. First, changing the professional development paradigm requires rethinking and revisioning the design, delivery, content, and outcomes of teacher professional development. Rethinking teacher professional development requires the collaboration and voice of teachers, school board members, administrators, and community members. Rethinking teacher professional development and reframing it in teacher contracts is not just an issue between teachers unions and school boards. It is a public issue requiring the input and understanding of all educational stakeholders. A second stream of change is restructuring teacher professional development. This restructuring requires a new architecture expressed in collaborative, negotiated agreements that creatively reconfigure time, space, resources, and materials to provide learning spaces for teachers in their work and beyond. Finally, a third stream of change is reculturing schools and teacher professional development. Reculturing begins with valuing teacher learning and understanding its link to high quality schools and student achievement. Teacher unions and school boards through their collaborative efforts, not confrontational relations, can help students, parents, and other community members understand the importance of teacher growth and development and its link to school/district goals.

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The Establishment of Modern Universities in Korea and Their Implications for Korean Education Policies

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Abstract

The purpose of this study is to examine the historical factors which affected the rise of modern higher education during the late Choson period (1880-1910), and to analyze the implications of these historical factors on educational policies in contemporary higher education in Korea. The rise of modern higher education in Korea can be viewed as occurring in three principal phases: Confucian Choson Royal Government, Western Christian missionaries, and patriotic nationalists. The author points out that the major historical factors influencing the development of modern higher education were Confucianism, Christianity, and Korean nationalism. In particular, Confucianism and Christianity have had substantial impacts on the planning of educational policies in contemporary Korean higher education; the former is viewed as an original source of educational enthusiasm which has expanded Korean higher education, and the latter a matrix of modern Korean higher education which has embodied educational enthusiasm.

Introduction

The Korean people have long respected Confucian learning (Note 1) and have attached great significance to education throughout Korean history. This tradition began in the three early kingdoms period (57 BC-AD 668) and continues to the present time. According to one important historical record, *Samguk-sagi* (Historical Record of the Three Kingdoms) (Kim, 1145), the intellectual activity during the Three Kingdoms period was the learning of Chinese thought and culture, which was much more highly developed than native Korean thought and culture at that time. After that period, the succeeding of the Unified Silla Kingdom (AD 668-935) and the Koryo Kingdom (AD 918-1392) still maintained Confucian study as a major academic field in spite of Buddhist monarchy. In the Choson period (1392-1910), the rulers of the Choson Kingdom accepted Confucianism as the source of basic principles for national politics, ethics, and education for over 500 years.

From the Three Kingdoms period to the late Choson era, although Korean elite or higher education (Note 2) had generally followed in the steps of the Chinese educational system, it is clear that the traditional or pre-modern higher education systems of Korea and China were not identical. As the *Samguk-sagi* (Kim, 1145) points out, Confucian studies and traditions from China were independently integrated into Korean culture and society. However, these traditions were modified during the late Choson period. In terms of the history of Korean education, the late 19th century was a pivotal period whereby the traditional educational system and Confucian elite institutes were devalued by Japanese politicians and Western Christian missionaries.

In light of the periodic importance of Korean education, several researchers have studied Korean education during the late Choson Kingdom and the Imperial Japanese Administration periods. For example, Horace H. Underwood (1926) in his book, *Modern Education in Korea* partially discussed Korean higher education under the late Choson Kingdom and Japanese colonial rule. James E. Fisher's (1928) Ph.D. dissertation, "Democracy and Mission Education in Korea," explored missionary education in Korea under Japanese colonial rule from the viewpoint of Christianity. Han-Young Rim (1952) also researched the development of Korean higher education under Japanese colonial rule in his unpublished Ed.D. dissertation, "Development of Higher Education in Korea during the Japanese Occupation (1910- 1945)." Sung-hwa Lee (1958) briefly examined the social and political factors affecting Korean education from 1885 through 1950, and In-soo Son (1985) analyzed Korean education from 1876 to 1910.

In this study, I will examine the historical factors affecting the rise of modern higher education during the late Choson period (1880-1910) and analyze the implications of historical factors on educational policies in contemporary Korean higher education. Furthermore, this study will provide both Eastern and Western educators with valuable information about the development of modern Korean higher education from a perspective of educational policy. I will first briefly illustrate the historical background of the study from the Three Kingdoms period to the late Choson period. Second, I will examine the circumstances of modern education during the late Choson Kingdom (1880-1910), classified into three phases: royal government operated-schools based on Confucianism, missionary schools on the basis of Christianity, and native private schools on the grounds of nationalism, and then review the historical factors affecting the development of modern higher education in Korea. Finally, how the historic factors impact educational policies in contemporary Korean higher education will be analyzed.

Historical Background

It is generally taken for granted that the Korean people attach great importance to education. This was true for many centuries and continues to the present time. According to *Samguk-sagi* (Kim, 1145), the first formal institution of elite or higher education was known as Taehak (National Confucian Academy), built by the Kingdom of Koguryo (Note 3) in AD 372. A similar institution for elite or higher education named Kukhak (The National Academy) was established in the Silla Kingdom (57 BC-AD 935). The Packche Kingdom (18 BC-AD 660) also stressed elite or higher education and produced numerous scholars in various academic disciplines, many of whom made important contributions to the flourishing ancient Japanese culture (Nihongi, Vol. I, Trans., Aston, 1896, pp. 262-63; Kojiki, Trans., Chamberlain, 1973, p. 306). Elite or higher education in the Three Kingdoms tended to focus on the study of the Chinese classics of Confucian orientation in order to establish their aristocratic political and social systems.

Like Taehak and Kukhak in the Three Kingdoms, Koryo (918-1392) had educational institutions that educated the elite who led its aristocratic society in order to maintain their hereditary political and economic privileges. Koryo already had elite schools in the capital, Kaeseong, and Pyoungyang in the first King Taejo's reign (918-943) (B. Lee, 1986, p. 47; K. Lee, 1984, p. 119). In the 10th year of King Seongjong (AD 992), Kukchagam (the National Academy or University) was established in the capital. This institution included three colleges: Kukchahak (Higher Chinese Classical College), Taehak (High Chinese Classical College), and Samunhak (Four Portals College). Subsequently, under the reign of King Injong (1122-1146), three colleges were included: Yurhak (Law College), Seohak (Calligraphy College), and Sanhak (Accounting College). The six colleges all existed under the Kukchagam.

These colleges had different entrance qualifications, curricula, and instructors. For instance, the Kukchahak admitted the sons and grandsons of officials above the third rank. The Taehak was open to the sons and grandsons of officials above the fifth rank and the great grandsons of officials of the third rank. The Samunhak was devoted to the sons of officials of the eighth and ninth, as well as the common people, who were admitted to study at one of three special colleges: Yurhak, Seohak, and Sanhak. The curricula of Kukchahak, Taehak, and Samunhak mainly taught the Chinese classics. The other schools' curricula dealt with technical subjects—for example, law, Chinese calligraphy, or accounting. The instructors of the first three institutions were "*Paksa* (Learned Doctors)" and "*Chokyo* (Assistant Doctors)," while the instructors of the latter three schools were "*Paksa* (Learned Doctors)." Institutions of higher education were open to the offspring of aristocratic families so that they might maintain their political, economic, and social privileges. Particularly, the Chinese classics that were based on Confucianism contributed much to Koryo society and politics through education.

From the beginning of the Choson Kingdom, Confucianism was a national religion. Choson rulers stressed Confucian education to train the civilian bureaucrats to lead their people, and to enable the people to follow Confucian ethics and values. Seongkyunkwan (Hall of Harmony or the National Confucian Academy) was established in the capital city during the reign of King Taejo (AD 1392-1398). The Seongkyunkwan eventually succeeded all other organizations, curricula, and functions of Kukchagam or Kukhak in the Koryo period.

The students of the Seongkyunkwan, who were the offspring of the bureaucrats, consisted of two hundred *seng-won* (classical licentiates) and *chin-sa* (literary licentiates). The curricula of the institution included *Ku-che* (Nine Subjects), that is, *Saseo* (the Four Confucian Books) and *O-Kyung* (the Five Chinese Classics). The subjects were instructed by various teaching methods: reading, composition, argument, persuasion, praising, and epigrammatic poetry (Choo, 1961, p.36). Completing all course work, the *yusaeng* (graduates) were permitted to take the *Kwa-keo* (the government examinations), particularly *Dae-kwa* or *Mun-kwa* (Triennial Higher Examinations or Erudite Examinations).

As mentioned above, in the early Choson Dynasty, elite education was chiefly regarded as an institution for preparation of the future civilian bureaucrats who then rose to political positions after passing examinations (*Kwa-keo*). Accordingly, since the Seongkyunkwan, as the highest educational institution, did not fulfill its function of pursuing knowledge and truth, it was reduced to a tool for preparing students for the national civilian examination systems. The examinations based on the Chinese classics constituted core curricula, and teaching methods were predominantly rote memorization and writing. Furthermore, even provincial and private schools stressed the preparation of the students from the lower civilian examinations or advanced studies to take the higher civilian examinations. Choson society was mainly directed by the *Yangban* (high level) class, who monopolized politics and the economy of the country; education was no exception. Therefore, education was regarded as the ultimate means to maintain the Yangban's socio-political privilege, and the *Yangban*'s educational enthusiasm contributed much to the pursuit of the ruling class's interest and power.

Indeed, the Choson rulers used the examination systems to protect their own interests. Although the examinations were supposedly open to the common people, they rarely passed the examinations because the Confucian academies were strictly forbidden to the commoners. In particular, women and *Sangnom* or *Cheonmin* (the mean people) (Note 4) were excluded from the learning opportunities in public institutions. Moreover, occupational or technical education (Note 5) was ignored by the *Yangban* class. Buddhism, Taoism, and the traditional folk beliefs were not discussed in the Confucian institutions and in the Confucian bureaucratic society of the *Yangban*.

Consequently, the Confucian educational system, which depended on the *Kwa-Keo* as a backbone of the early Choson's education, was maintained until the late 19th century when the Choson Dynasty opened its doors to coercive foreign power and received the Western modern educational system. Under these powerful influences, the Seongkyunkwan, as the highest educational institution, inevitably terminated the Confucian educational tradition and, unfortunately, bid farewell to the Choson's elite, particularly the Confucian literati.

Historical Factors Affecting the Advancement of Modern Higher Education in Korea

A new movement which called *Silhak* (Practical Learning) for modernization blossomed during the late 17th to the 18th century. A group of Choson scholars sought to devise practical ways to use academic knowledge to modernize the state. With the introduction of Roman Catholicism and Western knowledge by the Ching Dynasty (1644-1911/1912) of China, Choson scholars endeavored to create a modernized country. Unfortunately, these pioneers never reached their goal of reforming the Confucian Choson Kingdom politically, economically, socially, or educationally because the highly centralized bureaucratic politicians ignored the new religion and knowledge. Owing to the failure of the *Silhak* movement, the Korean people lost the chance to reform the old educational systems autonomously. Therefore, the beginning modern education in Korea was delayed until the late 19th century.

Confucian State Operated-Schools

In the late 19th century, the Confucian Choson Government recognized the importance of Western knowledge and education through external coercive power and an internal national awakening. Accordingly, in 1883, the Choson Government established Dongmunhak (The English Language Institute) as the first governmental modern school in the capital. Three years later, the government also set up Yukyoung-kongwon (The Royal English School) to educate the sons of the aristocratic *Yangbans* in English and other Western knowledge. Although both offered Western education to train future interpreters or governmental officials, they strictly kept the traditional Confucian educational systems and curricula. The two schools were not actually the types of modern educational institution needed to meet the demand for a new education at that time.

However, before the Confucian Choson Government could reform traditional education by itself, political and social reform (*Kabo-Kyungjang*) was carried out in 1894 as Japanese political forces demanded reform of the political, economic, and social systems of the Choson Kingdom. It is a widely held belief that the Japanese planned the occupation of the Korean peninsula as an advanced base to invade the Asian continent. Thus, the weak Choson Royal Government had to carry out huge reform--political, economic, social, and educational--under irresistible Japanese political pressure. The reforms in the social and educational systems included the abolition of the social status system, discontinuance of the *Kwa-Keo* (the government examinations) system (Brown, 1919, p. 79), and the creation of new educational systems from primary and secondary to vocational and foreign language schools. In particular, the Royal Government recognized the significance of teacher training as a means of modernizing education on the foundation of primary education. In 1895, according to the Royal Prescript of Education, Hanseong

Teacher's School was established in Hanseong (present-day Seoul). At the same time, old educational institutes, except Seongkyunkwan (The National Confucian Academy), were officially abolished.

On the other hand, although the occupational schools such as medical, law, commercial, foreign language, and technical institutes, were established, these schools were not highly regarded by the Korean people, particularly the *Yangban* (the ruling class) who despised occupational and technical skills. After the *Kabo* Reform (1894 Reform), the Choson Government tried unsuccessfully to change the old educational systems into modern Western types. Despite such resistance, some Christian missionary schools and native private schools were the seeds from which contemporary Korean higher education grew.

During the late Choson period, the Royal Government did not have sufficient finances to establish the highest educational institution as a Western modern university, nor was it familiar with Western higher educational systems (Bishop, 1897). Institutions which were founded by the Choson Government were typically elementary and secondary level schools. Therefore, there were no state operated schools resembling the modern Western university during the late Choson times.

Western Christian Missionary Schools

The second type of school founded by Western Christian missionaries greatly contributed to the development of modern education in Korea. In particular, the Catholic missionaries were educational pioneers who taught the native letters, namely *han-geul*, to the Korean women and men of humble birth for the understanding of Christianity before the Protestant missionaries arrived in Korea in the late 19th century. Along with the first Korea-U.S. Treaty on May 22, 1882 (Allen, 1908), a number of Christian missionaries of different denominations, Protestantism in particular, arrived and started medical as well as educational institutions as ways of carrying out their missionary work (Underwood, 1926, p.13).

The first American Presbyterian mission was opened by Dr. and Mrs. H. N. Allen who arrived in Seoul in September 1884 (Allen, 1908; Mckenzie, 1920). In the spring of the following year, the Rev. Horace G. Underwood, who published the first Korean-English and English-Korean dictionary, landed. The Rev. and Mrs. Henry G. Appenzeller, as well as Dr. and Mrs. Scranton with Dr. Scranton's mother, Mrs. Mary F. Scranton, of the Foreign Missionary Society of the Methodist Episcopal Church also arrived (Gale, 1909, pp. 161-63; Underwood, 1926, p. 9). Other American and Western missionaries, including Australian, English, and Canadian, also arrived in Korea before the end of the 19th century (Mckenzie, 1920, p.205).

In 1885, Dr. Allen established the first Western modern hospital called Kwanghyewon (the National Hospital) as a Mecca of medical education in Korea to provide education along with clinical practice. The hospital was to become a cornerstone for the Severance Union Medical College (the predecessor of the present Yonsei University Medical College), which opened in 1903 (Underwood, 1926, p. 120). (Note 6) In 1886, Mrs. M. F. Scranton opened the Methodist Girls' School (Ehwa-hakdang) as the first girls' school in Korea, which evolved into the present Ehwa Woman's University. (Note 7) Although the school began with one student, it gradually began to play a significant role in emancipating Korean women from the rigidly male-dominated Confucian Choson society, giving the females valuable opportunities to learn through both traditional and modern education. After Mrs. Scranton founded her school for girls, Rev. Appenzeller established Baejae-hakdang, the first missionary high common school for boys in the country, on June 8, 1886 (Bishop, 1897. p. 388; Underwood, 1926, p. 18).(Note 8) In 1897, Sungsil School was founded by the U.S. Presbyterians (Northern) at Pyungyang; and subsequently the school, called Sungsil Union Christian College (now Sungsil University) in 1906, was first developed as an international and union college in which the Northern Presbyterians, Northern Methodists, and Australian Presbyterians cooperated (Underwood, 1926, p. 127).

After Sungsil Union Christian College had operated for several years, many Christian missionary schools (Note 9) were established under different denominations and missions. All Christian schools or colleges stressed the evangelical ministry, although humanistic and natural sciences were also taught. In the early stages, most students of Protestant missionary schools came from the non-*Yangban* class, including women and the lower classes. Nonetheless, there is no doubt that these Christian missionaries sowed the seeds of Christianity and democratic spirit to the Korean people through education. The Christian missionary work in Korea had a great effect on the development of Korean education, including higher education in the following ways: awakening the national spirit, disseminating Christianity, recognizing the importance of Western practical and scientific knowledge, opening democratic education and education for women, teaching Western institutional systems and curricula, and instituting native language education.

Native Private Schools

The third type of institution was established so as to encourage national spirit and to enhance national power by farsighted patriots who intended to protect their country and people against foreign imperialists. The founders recognized new ideas which would help their nation to become modernized and stressed the role of education in developing a powerful country, politically and economically.

The first modern private school called the Wonsan-Haksa (Wonsan Academy) was established by the magistrate of Teogwon county and local residents at Wonsan in 1883 to serve the growing interest in education of the young (K. Lee, 1984, p.330). The school partially taught the traditional Chinese classics at first and then gradually included foreign language, law, geography, and international law. Twelve years later in 1895, Younghwan Min opened Heunghwa School, which primarily taught English, Japanese, and land surveying. Between the 1890s and 1900s, the native private schools mushroomed in the capital and provincial areas. However, the schools generally belonged to the secondary school or primary college level. Thus, there was no higher educational institution like a Western modern university in operation. Indeed, among the above private schools, only Boseong School, which was founded in 1905, became Boseong Junior College (as a predecessor of the present Korea University) during the Japanese colonial period.

In the late Choson period, although many patriotic leaders promoted the establishment of higher educational institutes to reform their under-modernized country, they could not overcome Japanese political power. Especially, after the 1905 Protectorate Treaty was signed, the Choson Government practically lost its national right to govern. During the "Protectorate" period (1905-1910), the Japanese educational policy was chiefly the preparatory operation for colonization through the promulgation and practice of various educational ordinances and regulations. For instance, the Private School Ordinance that was promulgated in 1908 was a means of placing under Japanese control and suppression all those private schools administered by Christian missionaries and patriotic Korean leaders (Underwood, 1926).

Therefore, the native private institutes under the Japanese "Protectorate" period lost opportunities to plant Western models which were suited to Koreans' needs due to the Japanese imperialists' educational policy to accomplish the annexation of Korea. Furthermore, Japanese imperialists attempted to abolish the native private schools as well as the Confucian institutes that had preserved the Korean academic tradition. They regarded education as a tool of assimilation to Japanese culture and of dampening of the Korean national spirit.

In terms of the development of Korean higher education, although the native private schools did not offer modern curricula and organizational structures of higher educational institutions because of Japanese political power, there is no doubt that the schools, as the preliminary institutions of higher education, marked a clear turning point in the history of modern Korean education and laid a cornerstone for the native private institutes in Korean higher education and encouraged the Korean national spirit.

In sum, the Choson Government recognized the significance of Western practical and scientific knowledge to the creation of a powerful country and carried out political, economic, social, and educational reforms; but the Government did not achieve these as a result of the prejudice of the conservative Confucian literati about Christianity and Korean people's general ignorance of Western knowledge. At that time, neither did most Korean people have an interest in the governmental education, nor did they willingly follow the governmental reforms controlled by the Japanese. Indeed, many conservative *Yangbans* wanted to maintain the Confucian educational tradition rather than to accept Western education instigated by the Japanese. After 1900, many young Korean nationalists were interested in the institutes founded by the national patriots, who had been active in political and educational endeavors, while the Confucians kept their conservative traditions. However, traditional Confucian schools gradually decreased in number due to the increase of Christian missionary schools and the native private schools.

The Implications of Historical Factors on Education Policies in Contemporary Korean Higher Education

Historical factors such as Confucianism, Christianity, and nationalism had a great influence on the development modern higher education in Korea. In particular, religion has played a significant role in the planning of the national education policy as well as in the development of contemporary Korean higher education. With Buddhism, Christianity has become one of the two representative religions (Note 10) in contemporary Korean society and leads the private colleges and universities in current Korean higher education. Confucianism did not contribute to establishment of Confucian institutes in modern Korean higher education; but it maintains a constructive relationship with Buddhism and Christianity. As Confucianism and Buddhism coexisted in Korean society as primary or secondary institutions until the late nineteenth century, so Christianity has mainly followed Confucian socio-ethical ideologies as a new adopted cultural mediator since the late nineteenth century. In contemporary Korean higher education, Confucianism and Christianity are two main historical factors dominating organizational culture as well as educational administration. In addition, the two factors are the main pillars of the planning of national education policies internally and externally. Confucianism has contributed to the planning of organizational structure and culture, whereas Christianity has contributed to the planning of instructional curricula and administrative systems.

In the history of Korean culture and education, Confucianism was a primary or secondary key institution in formal Korean elite education until the late nineteenth century. Christianity, on the other hand, had a significant impact on the introduction of modern higher education in Korea through harmonizing the religious and educational traditions of Confucianism during the late Choson period. Christianity still plays an important role in private postsecondary institutions. Confucianism does not directly contribute to the development of current Korean higher education, but Confucian socio-ethical principles and values are the principal axes of organizational culture in higher education administration.

In contemporary Korean society, the two ideologies—Confucianism and Christianity—coexist under the aegis of democratization and industrialization. With educational zeal based on the adoration of Confucian learning, Christianity and Western ideas, especially democratic and scientific approaches, brought about significant economic and educational advances. However, despite this positive side, a negative side also exists. In particular, mammonism and egoistic individualism threaten traditional values and norms. With the rapid expansion of Korean higher education, however, the influence of valuable traditional thought has gradually diminished, while individualism, materialism, utilitarianism, and scientism based on Christianity and Western ideas have spread broadly through Korean society.In addition, higher education is reduced to the level of being simply a tool to accomplish the individual's socio-economic aspirations while ignoring human ethics and morality. As a result of these phenomena, the traditional humanitarian spirit based on Confucianism is threatened by educational acculturation and pragmatic scientism. In addition, the educational zeal that has been a significant social factor or a driving force in the expansion of contemporary Korean higher education has been reduced to a means for individual's success.

Throughout the history of Korea, educational enthusiasm originated in traditional Confucian education. Of course, this enthusiasm is also found in other East Asian countries which follow the tradition of Confucianism. However, Korea's unique historical and cultural background resulted in the Korean people's adherence to Confucianism as the state religion for over 500 hundred years until the early twentieth century.

Educational zeal in past eras was viewed as a desire to maintain the Yangbans' socio-political privileges. This educational enthusiasm contributed to the pursuit of the Yangbans' socio-political interest and power through Confucian elite education and the state examination system, while maximizing the instrumental values of education. In the later nineteenth century, however, Confucian elite education declined in traditional functions and began to convert the Yangbans' monopoly to the commoners' concerns.

During the Japanese colonial period (1910-1945), owing to the Japanese colonial education policy of "Japanization," it was only possible for Japanese and a small minority of Koreans to access higher education. Most Koreans able to participate in higher education were pro-Japanese Koreans or the former Yangbans. Although a few common people could access higher education after to the abolition of the strict social hierarchy, most Koreans did not readily abandon traditional Confucian values and education. For this reason, it was still difficult for the Korean populace to participate in higher education during Japanese colonial times.

After liberation from Japanese rule in 1945, democratic education initiated by the U.S. military government (1945-1948) eventually afforded the populace an opportunity to access higher education. The common people who were able to access elite or higher education not only witnessed the granting of special socio-political rights to the Yangbans, but also recognized the instrumental values of education that endowed the upper class with socio-economic interests. Although the commoners were rarely allowed access to higher education on account of a rigid stratified social system, they desired to participate in traditional elite education or colonial higher education. Under the stratified social system, the ruling class, who were able to access higher education, was separated from the subordinate class. In spite of this divided system, the desire for education was different for the different social classes. Moreover, the rapid change of politics, economy, and society from the traditional bureaucratic Confucian society to the modern industrial democratic society necessitated the creation of human capital, thus promoting an academically oriented society.

From the perspective of Korean cultural history, the contemporary high level of interest in education among the Korean people is the result of two significant factors: the opening up of higher education to more than a privileged minority; and the potential of education to confer upon its recipient both higher social status and economic success. The Korean people's desire for more education was a major factor in the expansion of the national higher education system as well as the development of the national economy. (Note 11) In particular, economic growth in the 1960s and 1970s was the result of the expansion of higher education. On the other hand, this enthusiasm for education has had a downside: excessive private education expenditures, social disharmony between the rich and the poor, promotion of an academic attainment-oriented society, and an *examination hell* for college entrants. In spite of these social and educational problems, the rapid growth of higher education leading to rapid economic development has come to be regarded as a model for the developed countries as well as developing countries. A fundamental cause of this economic and educational success was Koreans' desire for education rooted in a Confucian cultural, although national economic development policy played an important role as well.

Without a correct understanding of this national enthusiasm for education, it is meaningless to discuss the expansion of higher education and rapid economic development in contemporary Korea. Grasping the negative side of educational enthusiasm is no less necessary than understanding its positive aspects.

Notes

[1] Confucianism is an ideal ethical-moral system based on the teaching of Confucius, a Chinese philosopher in the sixth century BC.
[2] In the traditional period, Korean higher education fostered the elite who can lead the Korean people. Therefore, the words "higher education" would have different connotations than the ancient Greek or the medieval Western higher education.
[3] The Three Kingdoms were Koguryo (37 BC-AD 668), in the north; Packche (18 BC-AD 660), in the southwest; and Silla (57 BC-AD 935), in the southeast.
[4] Choson society was classified into three classes: Yangban (the ruling class), Pyungmin (the common people), and Sangnom or Cheonmin (the lower people or the mean people). Generally, Chungin (the professional group) belonged to the common people.
[5] The Chou Dynasty of China divided social classes into four strata according to occupations: scholar, farmer, manufacturer, and merchant. Following these social strata, the Choson people respected scholars but despised manufacturers and merchants. Accordingly, the Yangbans and the Commoners ignored the two occupational groups.
[6] According to KNCU (1960), Severance Union Medical College was established in 1905 (p.13). On the other hand, Son (1985) wrote 1904 (?) (p. 70).
[7] Cf. Underwood (1926) wrote that Ehwa-hakdang opened in January, 1886. Son (1985) mentioned that the school began with one girl in May, 1886. Yu (1992) noted that Ehwa-hakdang began with a governmental official's concubine on May 31, 1886. Ehwa Woman's [Women's] College opened with fifteen students in 1910 (Adams, 1965, p. 2; S. Lee, 1989, p. 89; Underwood, 1926, p. 113).
[8] Cf. Yu (1992) wrote that H. G. Appenzeller began to teach English for two students on August 3, 1885 (p.49).
[9] In-soo Son (1985) describes chronologically the founding of missionary schools between 1885-1909 (pp. 76-77). In May, 1910, the entire number of authorized private schools in Korea was 2,250; and 796 schools among them were established by the Western missionaries (S. Lee, 1989, p.90; Son, 1985, p.323).
[10] In 1999, Buddhists made up 45.7%, and Christians comprised 51.8% of the Korean believers. The number of believers was 22,597,824 (50.7 percent of Korean population) (Ministry of Culture and Tourism, 1999). Although Confucians only account for 0.9 percent of Koreans, Confucianism remains a core culture in Korean society.
[11] Between 1965 and 1996, the average annual growth rate of GNI (gross national income) reached about 8 percent, and GNI per capita increased from 105 to 11,380 US dollars (National Statistical Office: Seoul, Korea, 1999). In addition, between 1945 and 1999, Korean higher education increased from 19 schools, 1,490 teachers, and 7,819 students to 354 schools, 55,718 teachers, and 3,154,245 students (Ministry of Education and Korean Educational Development Institute: Seoul, Korea, 1999). The total student population of higher

education expanded by 403 times.

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"I love teaching but...." International Patterns of Teacher Discontent

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This paper is dedicated to the memory of Dr. Barbara Stone, a fine teacher and talented scholar, whose greatest gift to us was her friendship.

Abstract
This article reports the results of research into the career motivation and satisfaction of a sample of over 3,000 teachers and school administrators in four countries: Australia, New Zealand, England, and the USA. Using the participants' own words, we explore the effects on educators of recent international educational change, understood here as a subcategory of more general social trends. Bourdieu's concepts of the Right and Left Hands of the state are used to interpret the experience of teaching in a climate where, while more is expected and demanded of schools, and schools and teachers are scrutinised as never before, educational resources have become scarcer, and the status and image of teaching as a profession has declined.

Educational Change as Political Change: Consequences for Teachers and Administrators

Belief that schools could and should address the challenges for nation states of globalisation and other trends, real and imagined, have become the motivation for radical changes to the management of education. The school reform movement itself is part of a larger political trend characterised by attempts to make nations, industries, companies and even individuals more competitive. Strategies adopted are well known but included various types of deregulation, and the restructuring of industries, with down sizing, rationalisation and cost cutting the order of the day. The social consequences of these changes have been profound and have included increases in unemployment and underemployment, combined with a switch to "flexible" modes of employment, such as short-term contracts or casual work.

At the same time as these changes were being made, states increasingly have withdrawn from a number of sectors in which they traditionally had been involved and had supported, including public housing, social security, and education. The result has been to leave the newly under- or unemployed without a safety net and consequently even more unsupported and vulnerable. Social security has been replaced by widespread individual insecurity and an increase in social disruption and distress, and individual suffering has been the result.

The Right and Left Hands of the State

Bourdieu (1998) has written on these large and significant changes to the nature of the state. He refers to the institutions that have largely shaped and driven the reforms, that is cabinets, finance ministries and treasuries, and banks, as the Right Hand of the state. Those concerned with the public interest and welfare such as education, social services, public broadcasting, he calls the Left Hand.

The Left Hand, including "family counsellors, youth workers, rank and file magistrates, and increasingly primary and secondary school teachers " (p.2), finds itself confronted with the human consequences of economic restructuring. Members of the caring professions increasingly experience themselves as "sent into the front line to perform so called social work to compensate for the inadequacies of the market" (p. 3). Bourdieu contends that the Right Hand does not know and does not want to know what the Left Hand is doing, and certainly does not want to pay for its activities. Social service agencies of all sorts are thus faced with the demand to do more with less.

The antipathy of the Right Hand to the Left is also graphically illustrated in the decline of the status of those professions that perform the work of the Left. Included in this trend has been a decline in relative salaries for the Left. Bourdieu argues that "the salary granted is an unequivocal index of the value placed on the work and the corresponding workers" (p. 3). This decline has been paralleled by an increase in the prestige and remuneration awarded the Right Hand professions, all those who work with money rather than people.

The Contradictions of High Modernity: Deregulation and Low Trust

Another important aspect of economic and social restructuring also had its impact on teaching and teachers, and indeed education may be seen as the most extreme case of this trend, the trend to employ an auditing model of "quality control."

Popkewitz (2000) noted that educational reform, as with other contemporary efforts at restructuring, is characterised by both centralising and decentralising tendencies. Decentralising/deregulation leads inevitably to potential loss of cetralised control and subsequent anxiety about maintenance of authority relations andmaintenance of quality. The phenomenon of the audit has emerged as one attempt to deal with the contradictions and uncertainty unleashed by these recent social and economic changes.

Power (1994) in his book on the audit explosion discusses the expansion of this phenomenon. Originally a financial activity, auditing now takes a somewhat different form as it pervades other fields such as the environment, medical practice, and education. Paranthetically one might add that in a climate where the bottom line is the ultimate arbiter, the choice of a financial model of quality assurance is not surprising.

According to Power, audits are designed to provide assurance and the abatement of risk, along with transparency of action, quality, value for money, best practice, and freedom from harm. He contends that the "fad" for auditing arose out of the contradiction that "on the one hand [there is] the need to extend a traditional hierarchical command in order to maintain existing structures of authority; on the other the need to cope with the failure of this style of control, as it generates risks which are increasingly hard to specify and control". (p. 6).

The currently favoured model of auditing, Style A – Power maintains there are other available models – applies across disparate arenas. Central features of the model include long distance control, usually by external agencies, quantitative measures, low trust and *ex post* control. These important features are linked. For instance, the involvement of outside bodies of experts in the oversight of activities has facilitated a shift in trust from operatives, the performers of activities, to auditors, those who police performance. Operatives are no longer to be trusted to do their jobs correctly, efficiently, effectively, and indeed ethically, but auditors are trusted to ensure that this all occurs.

The audit as it is currently conceived comes to shape the activities it is meant merely to oversee. If, for instance, counting is in favour, quantity over quality will prevail. If evidence of regulatory activity is required, regulation will increase and with it the associated paper work which is its evidence. Popkewitz (2000, p. 18) discussed how auditing in education systems performs that shaping function: "In this sense we can think of auditing as a way to 'reason' that has practical consequences. It shapes the conduct of professionals and organisations by asking that the standards of performance function as a technology to evaluate individuals. This is evident in systems of teacher education that focus on performance outcomes, as well as certain ways of thinking about students' learning. Auditing, then, is a knowledge that functions as an active intervention into organisational life, reshaping activities according to the norms of a fundamentally 'opaque expertise.'" (Popkewitz, 2000, p. 18)

In the field of education, the audit is epitomised by the British Office for Standards in Education (OFSTED) system of school inspections, but each national or state educational system has its own versions. One of OFSTED's main tasks has been to set up a system of school inspections, which occur every four years. Results of OFSTED inspections and national tests of student achievement are used to construct schools "leagues tables". These tables are published in the "interests" of keeping "consumers' informed". They also form the basis of decisions to intervene in schools or change their status, including the most radical intervention—closing the school down.

Similarly, in the United States, the audit currently takes the form of state-designed testing programs. Currently most states mandate tests in some academic subjects and 21 states have plans to rate schools based on results of these tests. In addition, several districts are looking at the possibility of linking teachers' promotion and salaries to the performance of their students on these tests. The National Reading Panel authorized by the Reading Excellence Act of 1997, recently issued its findings and has called for the adoption of one particular approach to teaching beginning reading. (National Reading Panel Report: http://www.nationalreadingpanel.org/Documents/default.htm)

Consequences for Teachers of Social and Political Change

The International Teacher 2000 Project was launched to investigate the consequences for teachers and administrators of the changes to education systems described above. Increasingly, it has become obvious that the factors that influence teachers' occupational satisfaction are no longer confined to the microcosm of the school (Sergiovanni, 1967, following Herzberg, et. al., 1959). Instead the "Third Domain" (Dinham and Scott, 2000) has a major influence in determining how teachers feel about their work.

Whereas older models of occupational satisfaction posited two spheres for discussing satisfaction and dissatisfaction, the actual work of teaching and the conditions under which work must be performed, the new theory proposes a three- factor model. The Third Domain, encompasses factors at the system level, as well as wider social forces. As Bourdieu would argue, these include the increase in social disruption and suffering attendant upon economic rationalisation, and the decrease in respect, recognition and reward given to professions forming the Left Hand of the state (1998).

The researchers of the Teacher 2000 team sought to cast their net wider than an investigation of "teacher stress" and instead set out to investigate what motivates teachers, and what satisfies and dissatisfies them about their work. To date over, 3000 teachers in four countries (Australia, England, New Zealand and the USA) have been surveyed using parallel forms of a self-report instrument. Results have been remarkably consistent and have been reported in detail elsewhere (see Dinham and Scott, 1996; Scott, 1999; Harker et al., 1998, for completed reports of national phases of the research).

Teachers in all four countries were found to be motivated by a desire to work with and for people, and to "make a difference" (Dinham and Scott, 2000) by assisting children and young people to reach their potential, experience success, and grow into responsible adults. Teachers everywhere found high satisfaction in this aspect of their work. In all four countries satisfaction remained high on a small focused set of "core business" aspects of teaching. This satisfaction occurred at the personal levels of working directly with children: experiencing success with pupils/students, working cooperatively with other members of the education community, and professional competence/development (Dinham and Scott, 1996; Scott, 1999; Harker et al., 1998). However, they rated their overall occupational satisfaction as low, and many find themselves more dissatisfied later in their careers than when they began teaching. Levels of dissatisfaction were not uniform across all aspects of the work, however.

Aspects of teaching associated with school level factors—school climate, leadership, resources, and reputation—were rated more ambivalently. Considerable variation was based, not surprisingly, on the school in which the individual teacher was currently employed. Aspects of the work that caused teachers dissatisfaction were more numerous and varied somewhat from country to country and according to current local issues and problems. As an example, when the Australian survey was in progress, a long-standing pay dispute, and previous, unpopular changes to promotion procedures, conflict over which was still occurring, led to considerable discontent and industrial unrest, reflected in both the numeric ratings on relevant questionnaire items and the comments made by teachers (Dinham and Scott, 1996). For English teachers, the National Curriculum and OFSTED inspections were major issues, again registered in responses to the survey (Scott, 1999).

Despite national variations, there was also a core of Third Domain issues that concerned all teachers regardless of residence. They included decrease in status and recognition of the profession, outside interference in and de- professionalisation of teaching, pace and nature of educational change, and increase in workload. Mean ratings on items concerned with these issues were universally low, and observations about enforced change, increased outside interference in education, increased "non-core" workload, and low pay and status formed the majority of comments on open-ended sections of the questionnaire.

Previous publications have explored the quantitative measures of discontent including the development of the scales used to assess satisfaction and dissatisfaction with facets of teaching and its context (Scott, Dinham and Brooks, 1999). This paper will focus on the participants' own words used to describe their experience of teaching in an era of profound and enforced social and educational change.

In Teachers' Own Words

In this section we use the teachers' own words to illustrate and support the points we have made, above. We have left the teachers' choice of words and modes of expression in the forms we received them.

The satisfactions of teaching

The main satisfiers of teaching are well known and have been documented by many researchers. As we note above these are the satisfaction of working with children and seeing them achieve, working collaboratively with other members of the education community, and achieving personal professional growth. Teachers in this study have continued to confirm these areas as satisfiers.

Working with and assisting others. A major and universal satisfier is the opportunity to work with children and with other members of the educational community. Teachers from all countries listed this aspect as a main source of satisfaction.

> I enjoy children and being with children. I find being a team member satisfying, working towards achieving goals together. NZ classroom teacher, 53.
>
> I enjoy working with children I enjoy helping people. I enjoy working with Teachers College students. NZ classroom teacher, 48.
>
> Joy of seeing children progress. Relationships with parents. Teamwork as a result of collaborative planning. UK head teacher, 46.
>
> Contact with children. UK, head of dept, 39.
>
> Team work of the staff. Working with other head teachers. UK, head teacher, 51.
>
> I have a dynamic coordinator of special ed (my dept). A lot of good things are being done for our department and our spec. ed students. She is definitely a child advocate. The morale is high and we feel like a family (we were very close and communicated a lot) everyone knows what is going on and issues that come up can be discussed freely. USA, specialist teacher, 25.

Professional efficacy and making a difference. A supreme satisfaction of teaching was the opportunity to "make a difference", contribute to a young person's development, and to see the results of that contribution. This for many or most teachers IS teaching and the externally imposed demands for assessment, record keeping, and accountability are in comparison "nonsense". They interfere with teaching, or to quote an NZ teacher, change it to "being an accountant and not an educator".

> I enjoy making a difference to people's lives. UK, head teacher, 46.
>
> Teaching was a career path that I chose so that I would be able to help people and hopefully enable them to achieve the best that they can for themselves. Working in what is considered a "disadvantaged" school, doesn't bother me at all, in fact the challenge is more rewarding. Aust classroom teacher, 22.
>
> Evidence of learning and creativity. Pupils growing up and turning out all right after all. UK, head of dept, 49.
>
> Satisfaction comes...when you can sit down at a break and say you've taught a lesson well (emphasis in original). NZ classroom teacher, 37.
>
> Knowing my class is happy to be at school. Giving a boost of confidence or highlighting a child's achievement who does not normally do well. NZ classroom teacher, 36.
>
> I love to watch the growth in my students as they experience success throughout their educational endeavours. It pleases me to my very soul that I am able to help a child become an independent learner. It's like being a parent a multitude of times each year . . .I love it! USA classroom teacher.
>
> I teach because I love to work with students and experience the 'high' that comes from watching them achieve success with my help. It is the one driving force that keeps me in the profession. USA, classroom teacher, 43.
>
> I love feeling I have really helped and inspired someone. I enjoy planning my lessons and seeing kids succeed. USA, classroom teacher. 53

*Professional challenge and growth.*Teachers from all countries commented on aspects of teaching work that allowed for both the utilisation of personal qualities such as flexibility, creativity and the ability to respond well to challenge and the opportunity to continue to grow and develop as an individual.

> The scope for being creative, improvising and exploring different ways to teach/meet students' needs. That every day is different- bringing new surprises/challenges. The classroom is a very vibrant place to be. NZ classroom teacher, 30.
>
> I like teaching because it allows me to continue to learn and grow in many ways. USA classroom teacher, 58.
>
> The adventure of learning—both pupils and teacher. UK, specialist, 52.

> Creativity of producing teaching materials. UK, classroom teacher, 29.
>
> The joy of overcoming difficulties. UK classroom teacher, 48.
>
> I think to be a good and successful teacher you need to be able to make your own decisions, devise your own philosophy and keep yourself motivated and buoyant. Aust classroom teacher, 50.

Dissatisfiers: Dealing with the social consequences of change

To those on the inside, the teachers and adminstrators themselves, the pressures to which teaching has been subject as a profession may feel unique. An exploration of the nature of current social change, however, makes it clear that these demands are manifestations of tendencies in the larger society. Teaching may thus be seen as a case study of the effects of these tendencies on professions of the Left Hand. The Teacher 2000 Project marks the first time the pressures from the education system and societal levels have been documented and fully recognized.

The effects of social disruption. As discussed above, Bourdieu has noted that the many consequences of the international waves of change and restructuring are frequently characterised by an increase in unemployment, material inequality, and a variety of ills that flow from them. Professionals who form the Left Hand of the state deal with the consequences of these ills for individuals, families, and communities. There are at least two major aspects of how this expansion of responsibilities has negatively affected teachers' occupational satisfaction:

1. Dealing with social disruption has widened the scope of teachers' work to make teachers, in the words of one NZ practitioner "counsellors, social workers, nurses", and in an Australian teacher's "bouncer, child counsellor, animal trainer, army sergeant, school nurse, megaphone (not the operator the actual machine)". The increase in work has both an indirect - "kids are so needy these days", to use one US teacher's words- and a direct cause as schools have become increasingly seen as the appropriate agencies to deal with a large and proliferating array of social problems.
2. Seeing the harm done to individuals is in itself an affront to many members of a profession dedicated to nurturing individuals and seeing them do well.

Teachers from all countries commented on both aspects, the increase to their own responsibilities, and the pain and frustration of seeing children's life chances compromised by social circumstances.

> I am interested and always have been in teaching my subjects, but I find it almost always a struggle battling with students' lack of real interest and maturation as well as general and severe behaviour problems associated with

> the above reasons or due to welfare problems. Teachers cannot do all things: teach, counsel, and to perform administrative duties (which are always on the increase) and counselling or reprimanding. Severely influence teacher satisfaction. Aust classroom teacher, 55.
>
> Poor family backgrounds—lack of experiences, language, attendance at school, physical/emotional abuse, all factors which severely affects children's progress. NZ, specialist reading teachers, 41.
>
> We are now expected to deal with barriers to learning by contacting health and social services, getting more involved in what goes on in the child's life outside school. NZ classroom teacher, 30.
>
> What the survey does not bring up is the type of students we must face (unlike the classrooms of yesteryear). Terms like BD, LD, ADD, ADHD, IEP, etc, make me feel I deserve a psychologist's salary instead. USA classroom teacher, 48.
>
> Lack of sufficient number of counselors – kids are very "needy" today. Social workers are scarce in the city, county and usually ineffective. USA classroom teacher, 55.
>
> Teachers are always addressing student and parent welfare. Very little is ever done for teacher welfare. Teachers are holding society together but if in-servicing money etc is not forthcoming for teacher welfare, there will be a breakdown in the education system. Aust classroom teacher, 30.

The tendency of the Right Hand of the state to cut back on funding in areas of social need (while demanding more) has resulted in growing teacher dissatisfaction due to the compromises it forces in education, as well as the damage wrought elsewhere in society which it expects schools and teachers to rectify.

> Lack of funds to help all children. NZ classroom teacher, 44.
>
> Lack of up-to-date resources, particularly for special needs children. NZ, specialist, 44.
>
> No money appears to be available for children who desperately need help. UK classroom teacher, 42.
>
> Student welfare is another big problem area. There is not enough support for students with severe psychological and behavioural difficulties. Before one can contemplate special placement (as scarce as hens' eggs) the fellow students and staff often are put under enormous stress. Children should not have to put up with these students in great need to the detriment of their health and education.

> Conversely we must provide for the students who are reacting to other impossible home situations. Aust classroom teacher, 49.

Erosion of professionalism. Erosion of professionalism also has at least two aspects:

1. Lowering of the status of and respect for the profession, symbolised for many teachers by the relatively low pay the work is awarded.
2. Erosion of the scope for exercising professional judgement, independence, and competence and of the time to do "real teaching".

The lack of trust in the professionalism of teachers and anxiety about national educational standards have led to a policing mentality among administrators, a tendency noted across many domains in the widespread move towards the adopting of Style-A auditing. The consequence has been an anxiousness to standardise and document all aspects of the work, lest quality be compromised by leaving too much to the judgement of practitioners. The introduction of many more reporting and documenting requirements, as well as the standardisation of many aspects of teaching, contributes both to the much noted increase in overall work load and to the erosion of the sorts of pleasures of the job described above, i.e., flexibility, challenge, creativity, working with and for people. These two facets of the erosion of professionalism, increased work and decreased respect, were summed up by one NZ teacher as "constant demands and negative comments".

Status, criticism, recognition and salary.

> Teachers need to be respected by other teachers, parents, students and the whole wide world. Respect and money! USA classroom teacher, 48
>
> Teaching isn't like it used to be and the money isn't worth the abuse we cop day in day out. Aust classroom teacher, 32.
>
> The status of teachers must be raised in regard to their place and respect in society. In order to effectively educate and care for children we must be respected, have status and held in HIGH esteem. Raise salaries – it's a start. USA classroom teacher, 49.
>
> Lack of recognition for experience and skills, constant denigration of skilled staff. UK, classroom teacher, 40.
>
> I also feel considerably underpaid. There are few perks to the job, if any. When I compare myself and people in industry I feel particularly cross, especially since I am better qualified than many of them. I feel that unless people are really committed then they should not enter the teaching profession these days. UK classroom teacher, 39.

> The press always seems to be hammering teachers. UK classroom teacher, 49.
>
> Total lack of respect for teachers. NZ, classroom teacher, 52.
>
> Lack of pay parity, poor salary. NZ, specialist, 44.
>
> Issue of teacher status/parent—community relations and media perceptions seem to me to be key inter-related issues. Balance of good community relations seems to be slipping away - schools subsequently have been under a lot of parent criticism. Aust classroom teacher, 49.
>
> Over the last 6 years I have become less satisfied with my chosen career due to the ever-increasing workload, never ending changes huge responsibilities, and constant media bashing. I paid my way through 8 years of study, bought many excellent resources, and have given up my health and quality of life to receive very little recognition or thanks. Aust classroom teacher, 28.

Erosion of professionalism/professional practice, increased paperwork. The flip side of the erosion of professionalism for many or most teachers is the increasing intrusion and interference by those education administrators, politicians, the press, school governors who know "naff all" about teaching, to quote an English head teacher.

> Teachers gain little respect...I feel more like a slave than an educator. Aust, classroom teacher, 27.
>
> Erosion of professionalism—we are completely emasculated by the national Curriculum/OFSTED/targets. UK head of dept.
>
> Schools become the "meat in the sandwich" during elections. Politicians use Education as a political football. Those in power beat their chests about "reforms" they have achieved and those wanting power assault us with what they will do to make teachers work more efficiently and produce improved student outcomes. To listen to their drivel on the TV and radio an ordinary person would think that teachers totally lack intelligence and the professional will to direct their own activities towards improved outcomes for the students. Aust, classroom teacher, 36.
>
> Teachers feel disillusioned with teaching because the DSE [Department of School Education, now the Department of Education and Training] shows lack of leadership. They are only interested in cost cutting measures. They bring in changes without any consultation with the people that matter - the teachers. They are out of touch with reality. Aust classroom teacher, 42.
>
> Rubrics must be made for every assignment, teacher judgement not valid. [leaving teaching] I will really miss

the children and TEACHING (which I believe I am not being allowed to do with all this NONSENSE– "show a rubric for everything you display" … "show how this lesson teaches a MAP skill" [state mandated test]. USA classroom teacher, 50.

I found over the years the amount of preparation and documentation and accountability and paper work has increased until I find I must consciously say that is all I'm going to do tonight/this weekend - as I must spend time with my family and friends. Aust classroom teacher, 41.

Unrealistic expectations of top administration. Increased load of meaningless paper work. I feel that education in general and my district in particular is responsive to "trends" in education. Whatever is the latest issue becomes our focus. I feel that our top-level administrators are very out of touch with what goes on in the classroom on a daily basis. I don't think my principal or superintendent could survive a week in my job. But they are constantly pushing for what they perceive as improvement, while only making my job harder. Classroom teachers are bombarded with paper work. We spend so much time on useless paperwork that planning, evaluating, and teaching time are seriously impacted. USA classroom teacher, 49.

Spending time on things that have no benefit to the children I teach and are not important to me apart from keeping my job. NZ classroom teacher, 27

Shocking admin work, copious assessment etc details. NZ classroom teacher, 50.

Paperwork—the endless evaluation/appraisal that no one else is interested in reading but which must be filed. NZ, classroom teacher.

A parent of a child I taught 9 years ago has just told me that her child has just been accepted for King's College, Cambridge to study medicine, and thanked me for my ability to develop and encourage his interest in science and maths. This was just pre National Curriculum, and pre all the 1001 "new" initiatives. A moral here, I think. I no longer have the time to do the same. UK Dept Head, 50

I can't help but feeling as a person who is prepared to give/care (and I generally think most teachers are like this) that I am being "used" by the system employing me, because each year I seem to be giving a little more (at the expense of my family and personal hobbies, etc). Aust, classroom teacher, 28.

I am convinced that the 60/70 hours per week required to do "my job"- in the holidays too, has been a significant factor in my illnesses. Over the last few years I have also

> suffered 2 serious episodes in which a key factor is the overbearing and never easing demands of the Principal's role. Aust principal, 54.

Quotes from UK teachers summed up well the ways that these various pressures are eroding some of the core satisfiers of teaching (viz,. facilitating student achievement, helping others, and one's professional growth) with professional autonomy and judgement being replaced by machine-like routines:

> I am very concerned at the increased stress levels being experienced by teachers. I joined this profession 24 years ago and felt I contributed more to children's education because I had time to relate to the children I taught. Now I am under so much pressure to reach standards I have little time to really talk to the pupils. I feel more like a machine as the years go by with little time for reflection. UK classroom teacher, 46.
>
> Teachers feel like puppets; other people pull our strings. There is little vision left in the teaching profession - it's been weeded out over the last 10 years (and is still being weeded out). UK classroom teacher.

In addition to the emphasis on external assessment and standardised testing compromising the opportunity for professional practice, teachers also feared that it would distort the entire educational enterprise

> I greatly fear that the net effect of this standards movement is an increase in the gap between the learned and unlearned, and the subsequent "lowering of the bar," which is the last thing we said we would ever consider, and the first thing that my district thought about (but, did NOT do), when they received back the latest round of writing scores. USA classroom teacher,
>
> There is too much teaching of programs rather than teaching of children in our district. The goal of education should not be to look good but to do whatever it takes to reach all students. If we did that, looking good would take care of itself. USA classroom teacher.

Erosion of Professional Relationships. Attempts to change the way schools are managed has had unfortunate consequences for collegial relations, and more so in those countries, notably Britain, where these have been the most far-reaching. Emphasis on a more managerial style for head teachers (principals) and the devolving to them of more discretion—and responsibility—over matters such as pay and promotion has frequently disrupted within-school relations. The requirement that principals implement changes that neither they nor their staff support has also had deleterious effects.

> As a bit of idealistic "old timer" very disappointed in new ethos of self-promotion, point-scoring, impressing others. Not as much openness, collegiality, sharing as when I

> began. Some new principals seem to see themselves as CEOs managers, etc. Replaced at higher levels of D.S.E., senior officers flit from position to position. Where is the accumulated body of knowledge and experience? Dissipated in manageralism?? Aust, classroom teacher, 49.
>
> Heads of schools playing one staff member off against the other. NZ classroom teacher, 39.
>
> Today's schools allow more room for personality clashes—you only get on by the word of others and not your ability, or potential. NZ, classroom teacher, 41.
>
> Head Teachers have no incentive to listen to staff. Greater Head Teacher powers make it impossible for teaching staff to have a professional voice. UK classroom teacher, 30.
>
> The philosophy and practices of teaching have changed markedly from being collegiate and cooperative to be divisive and competitive. The principal has created a culture of distrust and rivalry between teachers and faculties. Many teachers are now perceiving undermining of their colleagues, plagiarizing programs, stealing resources as a means to get on with their careers. Aust classroom teacher, 35.
>
> Being required to implement changes in which I don't believe with a staff who also disagree with them is not motivating. Knowing that the doubts I and many of my colleagues have will be dismissed as cynical, progressive (which I am not) or a pathetic justification of failure, undermines my professionalism and educational experience. UK head teacher, 48.
>
> Decision-making is limited to executive staff in the school.
> Opportunities are limited to executive staff. Aust classroom teacher, 32.

Conclusions

A consideration of teaching and its discontents may be seen as a case study of the effects of the current dominance of the Right Hand on professions of the Left. That is, a study of teachers' views of their occupation clearly shows the consequences for professions that deal with persons and their welfare in a climate where the bottom line has come to dictate the shape and nature of institutions and the relations of individuals to these and to each other.

Teachers everywhere enter the profession to serve children. While they are, in general, pleased with their choice of career as it relates to working directly with children who are willing to participate and learn, outside forces have intervened to prevent teachers from performing their jobs as they perceive them. The result has been a major decline in professional satisfaction. The increasing economic and social problems that teachers confront, combined with the efforts to have educational systems provide solutions for those problems, has led to an increase in the everyday work of teachers and its complexity.

Students who are extremely emotionally and socially needy and who have serious self-discipline problems increase the pastoral demands of teaching. In addition, the expansion of external assessment requires the production of more written documents in greater detail, causing the increase in paperwork of which teachers complain. As Bourdieu predicts would be the case, teaching has also suffered a decline in respect and status, combined with reduced salary and resources available with which to do its work.

We would therefore contend that the profound dissatisfaction expressed by teachers in all four countries is caused by the concurrent juxtaposition of and antithetical nature of two major factors:

1. *Motivation to enter teaching*. Teachers are motivated by altruism and activism in the sense of a desire to make a difference by aiding individual children. Teaching is an activity of the Left Hand, the welfare arm, of the state, and as such deals with the consequences of social change/disruption wrought by the Right Hand. It also attracts the antipathy of the Right Hand as reflected in its decline in pay, status, and recognition.
2. *The issue of control*. Growing attempts to control the process of teaching in order to control its output supposedly to benefit the nation economically have increasingly taken the form of attacks on teacher professionalism. This has led to a decline in the opportunity to experience satisfaction with one's own professional activity and ensuing erosion of overall satisfaction.

The melancholy conclusion to be drawn from this argument is that teaching is not and cannot be quarantined from the social context in which it is embedded. No amount of positive thinking or number of ringing admonitions can alter the effects on the profession of the general, profound decline in respect for and trust of those do people work. Similarly, working smarter or any number of other fashionable solutions cannot ameliorate the "intensification" (Hargreaves, 1994) of the work of teaching attendant upon these changes. What is required is a wider perspective on the nature and the enormity of the social changes that manifest at the "chalk face" in the patterns of discontent the voices of our participants reveal.

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La formación de posgrado en las ciencias sociales argentinas: oportunidades y restricciones para la innovación

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Resumen

El artículo analiza las principales características de los programas de maestría en ciencias sociales en la Argentina y evalúa en qué medida éstos se constituyen en una estrategia innovadora frente a un entorno institucional que opone fuertes restricciones al cambio. La investigación se basa en un estudio de diecinueve casos de maestrías de ciencias sociales en universidades públicas y privadas, contando además con información cuantitativa de aquellas que solicitaron acreditación en la CONEAU (Comisión Nacional de Evaluación y Acreditación Universitaria) en 1998. Los programas son analizados en términos de sus objetivos, insumos, procesos y productos. El trabajo concluye examinando las restricciones que limitan un desarrollo adecuado de los posgrados académicos y profesionales en el campo de la ciencias sociales.

Abstract

The article describes the main features of Argentine Social Science Masters programs and evaluates the extent to which they are developing innovative strategies in the present conservative institutional context. The research was based on nineteen case studies of Masters in public and private universities. Quantitative data were also gathered from those Masters that were accredited by the National Commission of Evaluation and Accreditation (CONEAU). All these data are analyzed in terms of the program's objectives, inputs, processing and output indicators. The paper concludes with an analysis of the restrictions that limit the suitable development of academic and professional postgraduate courses in Argentina.

1. Introducción

En el contexto de la expansión de la matrícula de los estudios de grado y de crecimiento y diferenciación institucional, los cursos de maestría ingresaron a escena en la Argentina en los años ochenta, irrumpiendo en el molde tradicional europeo de licenciaturas de larga duración y doctorados escasamente estructurados y desarrollados, prosperando con mayor rapidez y entusiasmo en las ciencias sociales. Teniendo por referencia este proceso expansivo, se llevó a cabo en el CEDES[1] una investigación sobre las maestrías de ciencias sociales, teniendo como fuentes la base de datos provista por la Comisión Nacional de Evaluación y Acreditación (CONEAU), instancia que acredita obligatoriamente al conjunto de los posgrados y la realización de diecinueve estudios de caso en universidades públicas y privadas[2]

Además de caracterizar descriptivamente el universo bajo análisis, ha sido el principal interés de esta investigación evaluar en qué medida estos nuevos programas de posgrado se constituyen en una estrategia innovadora frente a un entorno institucional conservador, que opone fuertes restricciones al cambio. Esta empresa innovadora está, empero, condicionada externa e internamente para alcanzar con éxito su propósito. En primer lugar, existen restricciones importantes en la disponibilidad de recursos humanos (docentes con credenciales de posgrado, grupos consolidados de investigación, actividades de tutoría), financieros (fondos institucionales para la actividad de posgrado y para la realización de proyectos de investigación, becas, bibliotecas) y físicos (disponibilidad de infraestructuras y equipos). En segundo lugar, las condiciones internas a la institución (las universidades) y a las unidades académicas (las facultades, los departamentos) conforman un marco organizacional con escasa capacidad de procesar sin conflictos cambios en la estructura de funcionamiento y en la gestión. En general, las universidades latinoamericanas tienen graves dificultades para encauzar las demandas de innovación que se generan en las bases disciplinarias. Finalmente, el marco regulatorio generado por las políticas gubernamentales no siempre produce las señales apropiadas para acompañar estos cambios innovadores, impidiendo la consolidación de nuevas prácticas de enseñanza e investigación.

Pensar en mecanismos innovadores en el nivel de posgrado supone adentrarnos en distintos modelos posibles de producir conocimiento y de capacitar a las futuras generaciones en esta actividad. La visión de la ciencia tradicional y sus mecanismos de organización, financiamiento y evaluación es ya muy estrecha para abarcar la complejidad de los programas y funciones que brinda la formación avanzada en la educación superior. Desde esta perspectiva, hemos delineado un marco analítico que nos permitiera reflexionar sobre la diversidad hoy reinante y que guiara nuestra lectura de los casos y del material recopilado. Es por ello que, previo al análisis de la información que surge de la investigación, brindaremos una primera reflexión teórica sobre esta cuestión.

2. Condiciones ideales de funcionamiento de los posgrados académicos y aplicados

Una tensión claramente presente en los modelos de posgrado de la Argentina, expresada tanto en los objetivos y organización de los programas como en la evaluación de la calidad de los mismos, es la que se presenta entre el modelo de posgrado académico y el modelo aplicado. Es claro que cada uno de estos modelos requiere de condiciones externas e internas de funcionamiento para lograr el éxito en la prosecución de los objetivos de los programas y para encauzar innovadoramente esta oferta. Un camino para analizar estas condiciones es utilizando los esquemas conceptuales que se esbozan en trabajos como los de Clark (1993 y 1995), Conrad et al. (1993) y Gibbons (1998).

Tanto Clark como Conrad analizan los estudios de nivel de posgrado, centrándose, el primero, en las condiciones externas e internas que favorecen la integración entre investigación, docencia y aprendizaje. En otras palabras, Clark será quién asuma la defensa del modelo académico o de la ciencia tradicional (también llamada modalidad 1 del conocimiento por Gibbons). Por su parte, Conrad, en respuesta a la fuerza arrolladora de la demanda de las maestrías profesionales, irá delineando ciertas condiciones innovadoras dentro de lo que podríamos llamar el posgrado aplicado. La visión de Gibbons es a la vez más general e integradora de ambos enfoques. Si bien su preocupación no son los estudios de posgrado sino las nuevas modalidades de producción y distribución del conocimiento así como los cambios organizacionales que las mismas demandan, arroja también luz sobre el desarrollo futuro de los posgrados. En éstos, el eje no será la producción y la formación dentro del marco de las disciplinas ni una visión estrecha de corte profesional, sino el contexto de aplicación o de resolución de problemas (lo que Gibbons denomina "modalidad 2" de producción de conocimiento). A partir de los trabajos de Conrad y Gibbons es posible, entonces, delinear algunas condiciones externas e internas al funcionamiento de los posgrados aplicados que resultan diferentes a aquellas pensadas dentro del enfoque de Clark para el modelo académico. Realizando un paralelo con la idea de Clark del nexo investigación-docencia-aprendizaje, diremos que este nuevo modelo, esbozado implícitamente en el trabajo de Conrad y más abiertamente en el de Gibbons busca la integración entre la resolución de problemas o aplicación, la docencia y el aprendizaje. Seguidamente brindaremos una síntesis de los principales aportes de estos autores que serán de utilidad para el análisis de nuestro objeto de estudio.

2.1. Fuerzas de fragmentación e integración del nexo investigación-docencia-aprendizaje

En una de sus últimas obras, Clark (1995) analiza las principales experiencias internacionales de estudios de posgrado, para desarrollar—a partir de dicho estudio—un conjunto de categorías analíticas apropiadas para identificar y explicar la presencia de un nexo "virtuoso" entre investigación, enseñanza y aprendizaje. La integración de estos tres planos de acciones se alcanza gracias a ciertas condiciones externas (en el plano de la organización de los sistemas de educación superior) e internas (en el nivel de la institución universitaria y sus unidades operativas, tales como los departamentos). Sin embargo, si bien a los ojos de Clark este nexo "virtuoso" encuentra su modelo ejemplar en las *graduate schools* de las universidades de investigación norteamericanas, en general el nexo es amenazado permanentemente por fuerzas de fragmentación. Las cuatro tendencias que contribuyen a separar la actividad de investigación y la educación universitaria en los niveles avanzados son: la masificación de la educación superior, la creciente demanda de expertos profesionales para el mercado de trabajo, la brecha entre el conocimiento de frontera y el conocimiento codificado, pasible de ser enseñado en la universidad, y el aumento de la supervisión y control de los gobiernos. Estos factores promueven el corrimiento en algunos casos hacia la investigación (*research drift*) y en otros hacia la enseñanza (*teaching drift*), aislando una de otra labor. Se da entonces el caso de investigadores que se dedican exclusivamente a esta actividad en laboratorios, centros de investigación, instituciones del gobierno o de la industria; docentes que enseñan sin incorporar los nuevos avances que se logran en el campo de la investigación y alumnos que se forman sin contacto con la práctica científica.

El vertiginoso crecimiento de la matrícula en el nivel superior ha propiciado la expansión del sistema y con ella su diferenciación institucional, favoreciendo el surgimiento de instituciones de educación superior sólo dedicadas a la enseñanza. El sistema se torna entonces cada vez más "postsecundario" y menos "superior". Esto no sólo tiene lugar en el nivel del grado sino que se extiende a la educación más avanzada. En el nivel del posgrado esto se manifiesta en el crecimiento de aquellos programas que tienen menor sustento en la actividad de investigación como es el caso de las maestrías. En Estados Unidos se otorgaron en 1994 387 mil títulos de maestría, el 84 por ciento de los cuales correspondía a aquellas de corte profesional, siendo las más importantes las maestrías en negocios (MBA) y educación (para los docentes), y 41 mil títulos de doctorado (LaPidus, 1997).

Por su parte, la cada vez mayor especialización de los temas de investigación demanda una creciente concentración de fondos, equipos y personal especializado que es difícil de retener en los espacios tradicionales de docencia y aprendizaje. En aquellos casos en que estas unidades se ubican en las universidades, lo más probable es que sus integrantes estén exceptuados de realizar actividades docentes. En gran parte de los países analizados por Clark, la investigación se ha expandido por fuera de las universidades, en organismos públicos, militares, industriales e instituciones sin fines de lucro.

Finalmente, la separación del financiamiento de la enseñanza y de la investigación impulsada en los últimos tiempos por los gobiernos es un elemento adicional que propicia la separación del nexo. Por un lado, los gobiernos buscan disminuir el costo de los graduados universitarios fomentando la expansión de instituciones volcadas más centralmente a la enseñanza que a la investigación. Por el otro, los fondos de investigación se distribuyen según mecanismos competitivos reforzando el efecto Mateo: se les da más a los mejores[3]. Un ejemplo de ello es el caso del Reino Unido.

En síntesis, los sistemas nacionales de educación superior, sujetos a una fuerte demanda social y con recursos públicos que no crecen a la par, invierten en instituciones dominadas por la enseñanza, en los niveles iniciales más masivos y en programas de posgrado no orientados hacia la investigación. La hipótesis de Clark es que estos son procesos sin retorno. A pesar de ello, considera que es posible constatar la presencia de condiciones que tiendan a contrarrestar estas fuerzas disgregadoras del nexo investigación-docencia-aprendizaje. Las condiciones que propician, según Clark, la integración del nexo son tanto externas como internas a las universidades. Distingue así tres niveles de condiciones propiciatorias: en el nivel del sistema nacional de educación superior, en la organización de la institución universitaria y en la unidad de ejecución o unidad operativa (departamento).

En el plano externo, en primer lugar, la diferenciación de instituciones permite resguardar un espacio donde este nexo es posible. En palabras de Clark:

> Si un sistema moderno de educación superior ha de dar sustento y protección a la integración de la investigación con la docencia y el aprendizaje, deberá en el nivel macro desarrollar una concentración institucional del nexo. Si se difunde entre todas las instituciones, el nexo se tornará muy costoso, con fondos insuficientes en el nivel de las unidades, y debilitado por la difusión. (Clark, 1995, pp. 214-215, nuestra traducción)

Una segunda condición que favorece en el plano de las condiciones externas el fortalecimiento del nexo es la presencia de competencia entre instituciones y programas. La administración descentralizada del financiamiento lleva a la competencia entre programas e instituciones por lograr obtener fondos para su unidad. A diferencia de la competencia en el plano empresarial donde el objetivo es maximizar la ganancia, en el ámbito de la educación superior la competencia se da en el plano de la reputación. Esta descansa a su vez en disponer de investigadores de alto nivel académico. La posibilidad de atraer dicho personal depende de poder mantener condiciones de trabajo adecuadas para éste. Estas condiciones y un personal de alto nivel conducen a un aumento de la productividad en la investigación, lo cual resulta en que la institución sea un imán para la investigación y la capacitación de los estudiantes más talentosos. Una vez que la reputación se ha establecido, ésta es el principal activo del que dispone la institución universitaria.

La tercera condición en el plano del sistema es la presencia de una ideología de la unidad del nexo. Esta creencia descansa en el ideal humboltiano de "educación a través de la ciencia" donde en ámbitos institucionales tales como el laboratorio o el seminario de investigación, docentes y alumnos entran en una relación íntima de mentor y aprendiz, instancia en la cual no sólo se transmite conocimiento tangible sino también tácito sobre la práctica de investigación.

La última condición integrativa es el mecanismo de financiamiento. La separación del financiamiento de la enseñanza y la investigación conduce, en última instancia, al corrimiento hacia la enseñanza o hacia la investigación. Por tanto, lo mejor es que las universidades perciban el aporte público a través de un subsidio global, siendo la propia institución la que redistribuye los fondos entre enseñanza e investigación.

En el plano de la universidad, tres elementos ayudan a la integración del nexo: 1) la diferenciación de la enseñanza de grado de la enseñanza de posgrado a través de una estructura organizacional particular: la escuela de posgrado; 2) la autonomía en la actividad de investigación, gracias a la diversificación de las fuentes de financiamiento y la presencia de subsidios cruzados entre el grado y el posgrado y 3) la competitividad alcanzada por la ocupación de nichos, por la escala y el alcance de los estudios de posgrado.

El último componente esencial para que el nexo entre investigación-docencia-aprendizaje sea viable es la presencia de ciertas condiciones en la unidad operativa o ejecutiva. Nuevamente el modelo norteamericano de la organización departamental resulta el ámbito más propicio, según Clark, para que un grupo de docentes - investigadores transmita no sólo conocimiento tangible a sus alumnos sino también el conocimiento tácito necesario para embarcarlos en la actividad de investigación. El departamento académico deviene el ámbito adecuado para fusionar el grupo de enseñanza y el grupo de investigación. A lo largo de un período de cuatro años (si llevan adelante estudios de doctorado) los estudiantes están expuestos a este conocimiento tácito así como también a información y técnicas transmitidas por los docentes. Mientras que la organización departamental hace posible la transmisión del conocimiento tangible, el grupo de investigación es el principal vehículo para la socialización del conocimiento tácito.

La fuerza del modelo de la escuela de posgrado norteamericana para garantizar la presencia de este nexo ha llevado a su difusión en el plano internacional. A principios de los años noventa se comenzaron a crear escuelas de posgrado en el Reino Unido, Holanda, Alemania (Burgess, 1997) y son el modelo implícito de muchos posgrados latinoamericanos.

Como es posible apreciar, en las mismas fuerzas fragmentadoras se hallan implícitamente los caminos para alcanzar la integración.

2.2. Hacia un modelo alternativo de producción del conocimiento: el nexo entre resolución de problemas –docencia - aprendizaje

Si bien el esquema conceptual que elabora Clark es un buen punto de partida para evaluar las condiciones que hacen posible la tan deseada integración entre la investigación, la docencia y el aprendizaje, es limitado si se busca también examinar los requisitos para que la abundante oferta hoy existente, orientada hacia la capacitación y formación aplicada para el sector público y el privado sea de calidad, eficiente y pertinente. Tal como lo destacan Conrad et al (1993), el "silencioso éxito" del posgrado norteamericano se expresa en una proliferación de programas, alumnos y graduados en estas orientaciones profesionales. Por el contrario, las maestrías vinculadas más íntimamente con la investigación son consideradas o bien sólo un estadio previo hacia el doctorado o, en el peor de los casos, un premio consuelo para aquellos que no han logrado completar con éxito el más alto nivel.

Si tenemos en cuenta que la mayor parte de los graduados en el nivel del posgrado no se van a desempeñar en tareas de docencia e investigación dentro del sistema de educación superior sino que lo harán en otras instituciones del sector público y privado, sería esperable que las condiciones propiciatorias de un nexo virtuoso entre el saber aplicado, la docencia y el aprendizaje fueran diferentes de aquellas que son exitosas para el posgrado académico tradicional. El conocimiento tangible y tácito transmitido a través de los posgrados debería responder a esta situación. Esta es una realidad incluso para algunos graduados del nivel de doctorado.

El modelo tradicional anglosajón de *master* vinculado con el *Ph.D.* y, por tanto, con la investigación, se contrapone también con el nuevo modelo—más profesional y aplicado—en el perfil de sus estudiantes. Cada vez más los estudiantes de posgrado son adultos con edades superiores a los 30 años y con dedicación parcial al estudio. En estos programas, se enfatiza la práctica más que la teoría, la adquisición de destrezas, más que la investigación, y el entrenamiento más que el trabajo académico (Conrad et al, 1993).

Este modelo de maestría fue acompañado por el uso de nuevas tecnologías de enseñanza y por formatos no tradicionales en la organización de los cursos. En 1987 en los Estados Unidos, por ejemplo, cerca del 70 por ciento de los títulos de maestría otorgados no requirieron la realización de tesis (Conrad et al, 1993). Del trabajo de campo realizado por el estudio de Conrad et alsurge también como relevante la presencia de un cuerpo de profesores donde se incluyen profesionales con experiencia especialmente en el mercado de trabajo, actividades de enseñanza-aprendizaje participativas y con prácticas en los ámbitos laborales donde se desempeñarán los graduados (prácticas en laboratorios, trabajos de campo, pasantías en organismos del sector público y privado, etc.), adecuados sistemas de recompensas para los docentes, orientados a premiar la actividad desarrollada en estos posgrados y mecanismos de asistencia económica a los estudiantes de tiempo parcial. Estas condiciones se alejan en parte de los atributos de calidad que suelen acompañar al modelo tradicional de posgrado de investigación[4].

El modelo de posgrado que describe la investigación de Conrad se acerca al paradigma de Gibbons (1998) sobre las nuevas tendencias en la educación superior. La tesis principal de Gibbons es que las universidades están organizadas según las estructuras de las disciplinas científicas (lo que Gibbons denomina *modalidad 1*) y que estas estructuras se están modificando en dirección a lo que pasa a llamar *modalidad 2*. En el espacio de las universidades, esta modalidad 2 supone que la producción y divulgación de conocimiento—la investigación y la enseñanza—ya no son actividades autónomas, que se llevan a cabo en instituciones aisladas, sino que implican una interacción con otros diversos productores de conocimiento. El punto de partida de su marco analítico es que las consecuencias de la masificación de la educación superior y las presiones internas de la competencia han contribuido a modificar la base sobre la que se realiza la investigación y la producción de conocimiento en general. A partir de esta afirmación marca las diferencias entre la modalidad tradicional de producción de conocimiento, la científica o modalidad 1, y la nueva o modalidad 2. A cada una de estas modalidades le corresponderán ideas, métodos, valores y normas diferentes, así como estructuras organizacionales, financieras y de control de calidad también diversas.

Dentro de la modalidad 1, las prácticas de investigación y enseñanza se organizan según la estructura de las disciplinas y bajo el supuesto de que la especialización es una forma segura de hacer avanzar el conocimiento. La estructura de las disciplinas da la pauta a los investigadores sobre cuáles son los problemas importantes, cómo se los debe abordar, quién ha de hacerlo y qué se considera una contribución a esta esfera. En los aspectos sociales también prescribe las reglas para acreditar a los nuevos investigadores, los procedimientos para seleccionar a los docentes y los criterios para su avance en la vida académica. La investigación que cumple con las normas estipuladas por las estructuras disciplinarias es considerada "ciencia" y a sus hacedores "científicos". Para buscar entonces otra denominación que identifique la actividad y a sus hacedores en la modalidad 2 Gibbons propone "conocimiento o investigación" y "ejecutantes o investigadores". No se sugiere, empero, que los ejecutantes de la modalidad 2 no se comporten de acuerdo a las normas del método científico.

En contraste con la modalidad 1, la modalidad 2 se organiza en función de una aplicación o problema particular. Con este propósito, un equipo de investigadores desarrolla un consenso teórico—que trasciende el marco disciplinario—para resolverlo. Para ello crean estructuras teóricas, modelos, métodos de investigación y formas de prácticas propios. El esfuerzo que realizan es acumulativo pero su contribución no es necesariamente a una disciplina especial. La modalidad 2 tiene la característica de la multidisciplinariedad. Esta característica se asocia con el desplazamiento de los intereses de los científicos desde la ciencia unificada hacia el estudio de las propiedades de los sistemas complejos. La aplicación de la modalidad 2 en los planes de estudio exige pasar de un aprendizaje basado en las disciplinas a otro basado en los problemas. En particular, los estudiantes de posgrado deben poder trabajar creativamente en equipos integrados por personas con muy distintos antecedentes científicos y deben saber cómo manejar más de un marco intelectual y cómo relacionarlo al problema de investigación en manos. Considera central las asociaciones con otras instituciones y ve con buenos ojos los nuevos arreglos o convenios que se alcanzan en el plano de la educación transnacional. El aprendizaje basado en los problemas debe incluir también capacitación en elaboración de modelos y simulación por computadora.

La comunicación de los resultados en la modalidad 2 no se limita a las publicaciones en revistas especializadas sino que se emplean multitud de formas electrónicas, organizacionales, informales, redes de comunicación, etc.

Al estar centrada en la resolución de problemas, aumenta el número de lugares donde puede crearse este conocimiento. Las universidades son entonces sólo uno de estos lugares posibles. Participarán también de esta actividad, institutos de educación superior no universitarios, centros de investigación, organismos públicos, laboratorios industriales, consultoras, etc. Para poder llevar adelante con éxito la modalidad 2, las universidades deberán convertirse en instituciones porosas, más abiertas y dinámicas en la búsqueda de alianzas y asociaciones de lo que son actualmente.

En el plano de la estructura organizacional interna, pone en duda a la institución universitaria y al departamento como el eje integrador. Debido a la especialización y a la fragmentación que han acompañado a la división y subdivisión del conocimiento, las facultades se han convertido en categorías de organización más que en categorías intelectuales. Incluso los departamentos son simples unidades administrativas y no tanto centros intelectuales. El curso y el equipo de investigación han devenido en la verdadera unidad académica. Los pequeños equipos universitarios de investigación son, por su parte, vulnerables a la gran movilidad de los jóvenes investigadores, atraídos por nuevas ofertas externas al ámbito académico, pero su fuerza radica en las redes de conocimiento a las que tienen acceso a fuerza de la competencia y la flexibilidad con que pueden abordar nuevos problemas [5].

La investigación en la modalidad 2 requiere nuevas formas de financiamiento. No depende tanto de los fondos del gobierno o de las fundaciones sin fines de lucro, sino de las empresas, los organismos públicos y los grupos de presión afectados directamente por los problemas a analizar. En tal sentido, un porcentaje creciente de las investigaciones se realizan en programas específicos financiados por organismos externos con finalidades definidas.

El control de calidad es también diferente. En la modalidad 1, la calidad se determina esencialmente por la evaluación colegiada de las contribuciones que efectúan los individuos. El control se mantiene mediante una selección cuidadosa de las personas que se consideran competentes para actuar como pares, lo que a su vez se determina por las contribuciones que hayan efectuado a su disciplina en el pasado. En la modalidad 2 se agregan criterios adicionales dados porque el contexto de aplicación ahora incorpora una gama diversa de intereses intelectuales así como otros de índole social o política. Surgen entonces preguntas del tipo: la solución a la que se arriba tras la investigación, ¿será competitiva en el mercado?, ¿será eficaz en función de sus costos?, ¿será aceptable socialmente? En otras palabras, en la modalidad 2, la evaluación se centra en la eficacia, eficiencia y pertinencia de los productos logrados.

Del análisis emprendido por los estudios de Conrad et al y de la prospectiva que elabora Gibbons sobre los caminos futuros de la producción de conocimiento, surgen una serie de condiciones externas e internas que contribuyen a integrar el nexo aplicación-docencia-aprendizaje.

Desde el punto de vista externo, a la diferenciación de instituciones dentro de la educación superior señalada por Clark, se le agrega la multiplicación de ámbitos institucionales dentro y fuera del sistema de educación superior donde se produce conocimiento y la constitución de alianzas estratégicas entre ellos. En tal sentido, la competencia no se remite sólo a la reputación adquirida por los recursos humanos (docentes y alumnos) disponibles en la institución, sino que se amplía para abarcar la capacidad de resolución de problemas por parte de estos centros de investigación dentro y fuera de las universidades. El conocimiento tangible y, en particular, el conocimiento tácito no se transmite sólo en el grupo de investigación sino que se obtiene también a través de prácticas en los lugares de trabajo y a través de pasantías. El financiamiento va dirigido especialmente a la formación de analistas o reconfiguradores del conocimiento y a investigaciones destinadas a resolver problemas. En tal sentido, en la delimitación del problema y en los resultados, participan las múltiples instancias interesadas. Como vemos, Gibbons trata aquí de acentuar las nuevas tendencias de vinculación de la investigación con la industria.

En términos de las condiciones internas, de acuerdo al paradigma que perfila Gibbons, no sería suficiente separar la formación de grado de la de posgrado, reservando para esta última la función de producción de nuevo conocimiento, sino que el grado también tendría que ir transformándose, rompiendo los moldes disciplinarios. Este punto no queda muy claro en su trabajo. Desde nuestra perspectiva, todo parece indicar que la multidisciplinariedad se alcanza mejor en el posgrado que en el grado.

La reforma en el nivel de los estudios de grado y de posgrado que propone Gibbons radica en otorgarle a los programas y a los títulos mayor flexibilidad, a la par que se imparten nuevos valores que establecen las bases de la aceptación del cambio permanente y de la necesidad de un aprendizaje de por vida.

Finalmente, frente a la importancia que Clark le otorga al departamento y al grupo de investigación como unidades básicas de ejecución, tanto Conrad como Gibbons hacen hincapié en la relevancia del trabajo grupal para la resolución de problemas en un ámbito multidisciplinario. De acuerdo a Gibbons, el departamento es sólo un ámbito administrativo, ya no más intelectual. Los distintos grupos que vienen trabajando alrededor de un problema, traspasan los límites estrechos de su disciplina en pos de comprender los sistemas complejos que enfrentan.

El marco analítico desarrollado hasta aquí nos permitirá a continuación organizar el estudio de las condiciones internas y externas del funcionamiento de las maestrías en ciencias sociales de la Argentina. Para ello, comenzaremos describiendo sintéticamente sus rasgos principales para abordar luego un examen más detallado de las mismas aplicando el concepto de función de producción.

3. Estructura y funcionamiento de las maestrías de ciencias sociales

En las últimas décadas, a las ciencias sociales les corresponde la mayor expansión del sistema, tanto en números de programas como en matrícula. En el nivel de posgrado, 32 por ciento de los títulos ofrecidos por las universidades estatales y privadas corresponde a esta área de estudio, con un claro predominio de los programas de maestría (Trombetta, 1999). En particular, las ciencias económicas (administración y economía) son las que mayor presencia tienen dentro de este tipo de programas, siguiéndole en importancia la sociología y las ciencias políticas (ver Cuadro N° 1).

Cuadro N° 1
Títulos de Maestría por disciplina en las Ciencias Sociales. Rep. Argentina, 1997 (en porcentajes)
Fuente: Trombetta (1999)

Disciplina	Porcentaje
Administración y Economía	53.8%
Sociología	15.4
Ciencia Política	13.6
Derecho	7.7
Comunicación	5.3
Demografía	2.4
Relaciones Públicas	1.2
Otras	0.6
Total	100
Número de títulos	169

En cuanto a la matrícula, el 43 por ciento de los 31 mil alumnos del nivel de posgrado cursa programas de maestrías, el 70 por ciento de ellos en universidades estatales (ME, 1999 b).

Con el fin de profundizar en el conocimiento del funcionamiento de estos programas, se decidió emprender una serie de estudios de caso y examinar los datos disponibles en la CONEAU al respecto[6]. El conjunto de la información producida y recopilada por este medio fue entonces analiza dentro del marco analítico antes desarrollado, ordenando las condiciones externas e internas de funcionamiento a partir de aplicar el concepto de función de producción a este campo de estudio particular. Más allá de las limitaciones de este concepto para explicar los complejos procesos sociales, políticos y económicos que tienen lugar en el ámbito educativo, consideramos que es de utilidad para organizar la información que surge precisamente de los indicadores empleados desde un plano de análisis estrictamente organizacional. Comenzamos así por examinar los objetivos de los programas, para después adentrarnos en el estudio de sus insumos, procesos y productos educativos.

3.1. Objetivos

Un punto de partida para analizar la coherencia interna de estos programas de posgrado es examinar cuáles son sus objetivos. Según surge de la lectura de los folletos de las maestrías de ciencias sociales y de las entrevistas a los directores de los programas, podríamos distinguir dos conjuntos de tipos de objetivos: académicos y aplicados. Dentro de estos últimos distinguimos entre aquellos orientados a la obtención de una credencial profesional y aquellos orientados a la resolución de problemas. En la mayor parte de los casos estas orientaciones no se presentan nunca en forma pura, pues en todos está presente la formación profesional, especialmente por las deficiencias, en cantidad y calidad, de puestos en el mercado de trabajo académico[7]. Pero también en todos encontramos cierta orientación hacia lo académico, pues existe una real necesidad de formar docentes de posgrado en las ciencias sociales. Es probable que el origen de este aumento de la demanda de credenciales académicas haya sido el resultado de señales emitidas por la política pública al requerir títulos del más alto nivel para la actividad de docencia universitaria. Las chances de que el posgrado sea finalmente acreditado por la CONEAU o que reciba fondos competitivos de programas como el FOMEC (Fondo para el Mejoramiento de la Calidad Universitaria)[8] aumentan en la medida en que el plantel de docentes tiene mayor nivel de formación académica.

A pesar de que la mayoría de las maestrías de ciencias sociales presenta múltiples objetivos, es posible distinguir un predominio más claro de lo profesional- credencialístico en las de administración de empresas; de lo académico, en las de economía, sociología y ciencias políticas y una orientación hacia la resolución de problemas en las de corte multidisciplinario. En estas últimas, los planes de estudio están orientados hacia la producción de conocimiento sobre las propiedades de sistemas complejos, como el estado y las políticas públicas, y no exclusivamente a una disciplina en particular y están, en el sentido de Gibbons (1998), guiadas por un contexto de aplicación y con una finalidad pragmática.

3.2. Insumos

Con relación a los alumnos de las maestrías de ciencias sociales, los datos existentes permiten inferir que se trata mayoritariamente de adultos, con edades que promedian los 34 años y que trabajan (García de Fanelli, 2000).

Para caracterizar al cuerpo docente de las maestrías en ciencias sociales utilizamos dos indicadores construidos en base a la información provista por la CONEAU. Los mismos son el grado académico máximo y la productividad en término de publicaciones.

Con relación al título máximo alcanzado por los docentes, debemos tener presente que, según lo determina la Ley de Educación Superior sancionada en 1995 (Ley Nº 24.521, artículo 36), los docentes universitarios de todas las categorías deben poseer título universitario de igual o superior nivel a aquel en el cual ejercen la docencia. Tratándose entonces de programas de maestría, los docentes deberían tener título de magíster o doctor.

Siguiendo este criterio, en la columna 3 del Cuadro Nº 2 se puede apreciar la proporción de la planta docente que, en cada tipo de posgrado y sector, no cumple con esta normativa. En promedio, esta proporción asciende al 37 por ciento, con escasas diferencias entre el sector de universidades públicas y privadas. Dado el reciente desarrollo del nivel de posgrado y, en particular, del nivel de doctorado en ciencias sociales en la Argentina, esta proporción no es sorprendente De todos modos, la situación difiere particularmente según disciplinas. Dentro de las maestrías en economía, la proporción de docentes que, como máximo sólo detenta el título de grado es casi inexistente. Son, por otro lado, las que cuentan con una mayor presencia de docentes con doctorado. En el extremo opuesto ubicamos a los docentes de las maestrías de administración, un tercio de los cuales posee como título máximo el de grado .

Cuadro Nº 2
República Argentina. Distribución porcentual de los docentes de las maestrías de ciencias sociales según grado académico máximo en 1998
(Fuente: CONEAU, 1999)

Programa	1 .Título de Grado	2. Especialista	3= 1+2	Magíster	Doctor
TOTAL	20.0	17.3	37.3	25.9	36.7
Sector Estatal	17.1	21.1	38.2	24.0	37.9
Sector Privado	26.0	9.9	35.9	29.5	34.5
ADMINISTRACIÓN	28.2	12.8	41.0	29.2	29.9
Sector Estatal	24.9	16.1	41.0	25.4	33.7

Sector Privado	30.8	10.1	40.9	32.3	26.8
ECONOMÍA	1.8	13.3	15.1	22.6	62.4
Sector Estatal	2.8	16.2	19.0	26.8	54.3
Sector Privado	0.0	8.3	8.3	15.5	76.2
Ciencias POLÍTICAS	11.5	26.3	37.8	22.8	39.6
Sector Estatal	11.4	28.6	40.0	22.8	37.3
Sector Privado	12.3	12.3	24.6	22.8	52.7
OTRAS Ciencias .Sociales	17.0	21.6	38.6	22.9	38.4
Sector Estatal	16.9	22.3	39.2	22.9	37.9
Sector Privado	18.2	4.5	22.7	22.7	54.5

En nuestros estudios de casos se observa además que una alta proporción del cuerpo docente de las maestrías de economía tiene formación de posgrado en el exterior, principalmente en universidades norteamericanas. Aunque en menor proporción, este patrón también es común entre los profesores de ciencias políticas.

Con relación a la productividad de los docentes medida en términos de la cantidad de publicaciones, se puede apreciar que, en promedio, cada docente ha publicado cuatro artículos en revistas internacionales y nacionales con referato, dos libros y tres capítulos de libros. La productividad promedio de cada docente es en total de 29 trabajos escritos, entre las distintas posibilidades (ver Cuadro Nº 3).

Cuadro Nº 3.
República Argentina. Promedio de publicaciones por docentes, sectores y disciplinas en los programas de maestría en ciencias sociales en 1998
(Fuente: CONEAU, 1999)

Disciplinas	Revistas sin referato argent.	Revistas con referato argent.	Revistas sin referato extranj.	Revistas con referato extranj.	Libros	Capítulos de Libros	Anales de Congresos	Arts . de divulgación	Total
1	4.2	1.0	2.4	1.4	1.4	1.3	1.9	9.3	23.0
2	3.4	1.4	6.9	5.3	1.6	2.6	3.4	3.9	28.4
3	6.3	2.4	7.2	5.1	4.0	6.4	6.6	11.7	50.0
4	4.1	1.7	3.7	3.5	2.5	4.3	2.9	5.6	28.4
Total	4.5	1.4	3.9	2.9	2.1	3.0	3.1	8.2	29.0

1: Administración; 2: Economía; 3: Ciencias Políticas y Relaciones Internacionales y 4: Otras Ciencias Sociales.

De estos datos es posible también inferir que cada comunidad disciplinaria tiene canales privilegiados para transmitir los nuevos conocimientos. Así, los docentes de administración y los de ciencias políticas producen un mayor número de artículos de divulgación que el resto. La producción de libros es por su parte más importante en las ciencias políticas y en la sociología que en economía o en administración .

Sin duda un elemento clave que explica la cantidad y calidad de los recursos disponibles es la disponibilidad de fondos. En tal sentido se observa que la principal fuente de fondos de las maestrías es lo recaudado en concepto de aranceles a los estudiantes[9]. El monto promedio pagado en tal sentido es de seis mil dólares, siendo mucho más elevado en el sector privado que en el público y en las ciencias económicas que en las otras ciencias sociales (García de Fanelli, 2000).

En consecuencia, casi todo el financiamiento del costo de los estudios de posgrado recae sobre los estudiantes y sus familias. La institución universitaria pública (vía subsidio del gobierno federal) financia centralmente la infraestructura básica y pone a disposición del programa la biblioteca de la facultad o del departamento donde se asienta formalmente la carrera.

Otra limitación en la disponibilidad de recursos es la falta de un programa amplio de becas o créditos educativos. Si bien tres de cada cuatro maestrías en ciencias sociales que se presentaron a la CONEAU afirman disponer de becas para sus estudiantes, en los estudios de casos se observa que las mismas son sumamente escasas y que, a lo sumo, cubren parcialmente el total del arancel (García de Fanelli, 2000). Ello es una de las razones que explican que la mayoría de los estudiantes sean de dedicación parcial.

También son escasos los recursos financieros disponibles internamente para la investigación, tanto aquellos provenientes del sector público como del sector empresario[10]. Esta es una restricción importante para que se desarrollen y consoliden grupos de investigación, ámbitos privilegiados para transmitir el conocimiento tácito de esta actividad. Actualmente los alumnos tienen su primer contacto con la tarea de investigación al momento de realizar la tesis. Ante el temor que la misma despierta, postergan indefinidamente su presentación, aun cuando hayan concluido de cursar y aprobar todas las materias y afrontado los altos costos de este proceso de aprendizaje.

Finalmente, el financiamiento del posgrado—sobre la base casi exclusiva de los aranceles que abonan los estudiantes—si bien brinda recursos suficientes como para remunerar a los profesores, limita el poder de decisión de sus autoridades y lo torna altamente vulnerable frente al ciclo económico. Como el posgrado es sostenible financieramente siempre y cuando se logre mantener una masa crítica de alumnos, ello impide el desarrollo de planes de estudios flexibles, que contemplen materias optativas, y la planificación de actividades de mediano plazo, pues se carecen de bases firmes para llevarlas adelante.

3.3. Procesos de enseñanza -aprendizaje- investigación y gestión

El análisis de los planes de estudio y las entrevistas realizadas revelan una gran ausencia: espacios donde los alumnos participen activamente, junto a los docentes, en actividades de investigación. Esto es importante especialmente en los posgrados académicos, con miras a articularse con futuros estudios doctorales, aunque no deja de serlo también en aquellos orientados hacia la resolución de problemas. En este último caso, la actividad podría estar orientada al diseño de modelos que faciliten una mejor comprensión de las propiedades de los sistemas complejos que abordan. En particular, los estudiantes de posgrado deberían poder trabajar en equipos integrados por profesionales con diversos antecedentes científicos y profesionales y aprender cómo manejar más de un marco intelectual para relacionarlo con el problema de investigación

En el caso de los posgrados profesionales y los orientados a la resolución de problemas en campos disciplinarios, faltan también espacios de capacitación en los lugares de trabajo, tales como realización de pasantías. Existen, por supuesto, algunos casos que han avanzado significativamente en esta dirección, incorporando prácticas novedosas tales como trabajos de campo realizados en estrecho contacto con el sector productivo, tesis definidas en función de problemas planteados por sectores públicos y organismos no gubernamentales, pasantías en distintas áreas del sector público, etc. También estos programas han tratado de firmar convenios con universidades extranjeras y locales a fin de establecer alianzas provechosas para los alumnos de la maestría, gracias al intercambio de docentes, alumnos y el otorgamiento conjunto de títulos (García de Fanelli, 2000).

En cuanto a la duración de las maestrías, en promedio demandan dos años para el cursado de las materias, lo cual está dentro de estándares internacionales. En los países industrializados existen también ofertas de un año de duración, pero exigen al alumno una dedicación de tiempo completo. En las maestrías argentinas, empero, parece excesivamente extenso el plazo que se otorga para la realización de la tesis. Más de la mitad de los programas fijan un plazo superior a los dos años. Como mínimo, por tanto, una maestría puede llegar a demandar cuatro años, lo cual puede ser excesivo si se piensa que lo deseable es que aquellos que se orienten por el mercado académico realicen también estudios doctorales. Probablemente lo extenso de este plazo se explique, en primer lugar, porque no existen becas que permitan que los alumnos se dediquen exclusivamente a esta actividad, con el agravante de que, tras finalizar el cursado de las materias, pierden contacto con sus docentes y sólo están inmersos en su actividad laboral cotidiana. En segundo lugar, como es la primera vez que los alumnos entran en contacto con la actividad de investigación, requieren de un período de aprendizaje antes de saber claramente cómo orientarse en esta práctica. En tercer lugar, puede ocurrir que las autoridades de las maestrías fijen exigencias superiores a las normales para una tesis de este tipo, confundiendo la tesis de maestría con una de doctorado. Finalmente, falta un sistema estructurado de supervisión que logre encauzar más prontamente la realización de las tesis. Reconociendo este problema, algunos planes de estudio contemplan la realización de talleres donde se discuten los proyectos de tesis al poco tiempo de iniciarse la cursada.

Respecto de la gestión, uno de los aspectos más innovadores y relevantes es su manejo altamente descentralizado y el papel del mercado en la coordinación de las políticas. Las autoridades del posgrado son las que en definitiva toman las decisiones cruciales sobre el plan de estudio, la admisión de los estudiantes, la selección y remuneración de sus docentes. Este es un aspecto importante pues les otorga más flexibilidad y plasticidad para el cambio y la experimentación de nuevas prácticas organizacionales y pedagógicas. Las particularidades de*este* nivel se explica por el código genético impreso en el momento de su gestación. Fruto de la masificación de la enseñanza del grado, necesidades de mayor capacitación y procesos de aculturación (importación del modelo anglosajón de "*masters*"dentro de una estructura de carreras de grado que responde al modelo de Europa continental), los posgrados experimentaron un crecimiento explosivo desde mediados de los ochenta. Como surgieron en un entorno caracterizado por la restricción de recursos financieros, se debieron autofinanciar a través del cobro de aranceles a los estudiantes. Esta necesidad de autofinanciación y su escasa importancia dentro de la arena de la política universitaria, a la par que limita su desempeño, los torna más libres y autónomos frente a la inercia burocrática de la institución. La inclusión de los posgrados dio lugar así a un cambio profundo en el plano organizacional, sin todavía lograr su articulación adecuada con el nivel de grado. Funcionan con una lógica totalmente diferente a la de éste: los estudios de posgrado son arancelados, los docentes son incorporados a través de procesos de selección que suele quedar a discreción de los directores de los programas, el nivel de las remuneraciones se fija en forma descentralizada—no sólo dentro de cada facultad, sino en cada programa—y se implementan procedimientos de selección de los alumnos mucho más selectivos que en el grado.

La fuerte diferenciación que media entre el grado y posgrado en su aspecto organizacional podría constituir una condición propicia para crear un ámbito institucional donde sea posible resguardar el nexo entre investigación- enseñanza –aprendizaje . En los hechos, este nexo es prácticamente inexistente en el nivel de grado y sólo se concentra en unos pocos campos disciplinarios como las ciencias básicas, algunas carreras de humanidades y las ciencias agrarias

Por otra parte, a diferencia del grado, en los estudios de posgrado existe competencia por captar alumnos, docentes y por la reputación. Tal como funcionan actualmente, en los posgrados de ciencias sociales prima una lógica de coordinación de mercado. Existe un mercado donde se compra y vende servicios educativos, particularmente porque su financiamiento principal descansa en el cobro de aranceles a los estudiantes. La intervención del estado, subsidiando a los alumnos a través de becas, es, como ya señalamos, escasa. En este contexto, los posgrados compiten por captar alumnos y, en algunos casos, esta competencia entre programas de un mismo nicho de mercado da por resultado que no se logre reunir una masa crítica de alumnos como para poder autofinanciar el programa. En algunas maestrías del sector privado, por ejemplo, para solucionar este problema se implementa una política de subsidios cruzados.

La coordinación casi exclusiva del mercado en términos del financiamiento impone, empero, serias restricciones a la expansión de estos posgrados, especialmente en lo que respecta a la actividad de investigación que los mismos pueden llevar adelante. En el caso de la investigación básica, por ser esta un bien público, es lógico que exista una subinversión si su financiamiento descansa exclusivamente en el mercado. La expansión de la investigación aplicada requiere a su vez del financiamiento de organismos públicos y privados interesados en los resultados de la misma.

En su faz positiva, esta misma lógica de mercado torna a las autoridades más preocupadas por la satisfacción de los estudiantes. Así, es una práctica hoy ampliamente difundida en el posgrado, no así en el grado, que los alumnos evalúen a sus profesores.

3.4. Productos de los programas

Una aproximación, todavía muy imperfecta, a la medición de la eficiencia de los estudios de posgrado en la Argentina permite arribar a la conclusión de que el nivel de rendimiento de las maestrías de ciencias sociales es muy bajo, dado el reducido número de alumnos que presentan sus tesis de maestría. Sobre la base de la información de aquellas maestrías en ciencias sociales cuyos datos sobre este punto eran confiables, hemos construido un indicador de desempeño, calculando el total de tesis presentadas hasta el momento de la acreditación (correspondiente a fines de 1998) por cada 100 ingresantes, contabilizando como tales sólo a aquellos que ingresaron con anterioridad a 1994 o 1993, si la maestría tenía una duración de 36 meses. Sobre 24 casos, un tercio de los programas tenía menos de 9 egresados por cada 100 ingresantes y más de la mitad, menos de 30 egresados por cada 100 ingresantes (García de Fanelli, 2000).

En términos de la calidad de las maestrías, se observa que las ciencias sociales alcanzan niveles de acreditación y de categorización[11] inferiores al promedio de las ciencias básicas. Por su parte, dentro de las ciencias sociales, las maestrías en economía presentan mejores estándares de calidad que las otras disciplinas de este campo de estudio (ver Cuadro N°4).

Cuadro N° 4. República Argentina. Recomendaciones de los comités de pares de la CONEAU sobre los posgrados en ciencias sociales, humanas, económicas, básicas y aplicadas en 1999. (En porcentaje) (Fuente: CONEAU, 1999)

				Acreditados				
Áreas de Estudio	Sin acreditar	No evaluables*	Acreditados	Categoría "A"	Categoría "B"	Categoría "C"	No solicitó categoría	Proyect nuevos
Ciencias Básicas y Aplicadas	7%	0%	93%	38%	40%	21%	0%	1%
Ciencias Sociales y	34%	1%	65%	8%	35%	39%	6%	12%

Humanas								
Ciencias Económicas	44%	3%	53%	3%	27%	33%	34%	3%

Por no estar la información completa

Frente a estos resultados, caben al menos dos hipótesis. En primer lugar, es posible que los

En segundo lugar, es factible que más allá de los problemas del instrumento de evaluación,

4. Reflexiones finales: Oportunidades y limitaciones en el desarrollo de los

La escasez de recursos y la ausencia de una clara orientación en los planes de estudio, a lo

Frente a un mercado de trabajo académico estrecho en cantidad y calidad de los puestos di

Esta tensión entre lo académico y lo profesional se expresa en programas de estudio que ni

Otro problema para llevar adelante un programa académico avanzado en el nivel de la mae
que hoy
tienen los docentes en el nivel internacional favorecen un intercambio más dinámico y flui

En el plano de la formación académica en ciencias sociales, parecería entonces importante

Así como parece necesaria una mejor articulación entre las maestrías académicas con el do

Si bien la consolidación de posgrados de corte académico es necesaria para mejorar la cali

Esta modalidad de producir conocimiento se comienza a vislumbrar en algunos de las mae

También las maestrías profesionales e interdisciplinarias han logrado cierto grado de "poro

Al igual que en el caso de los programas de corte académico, una de las principales defici

A diferencia de los posgrados de corte académico, los posgrados orientados a resolver pro

Finalmente, en la consolidación de estos programas es crucial que los controles de calidad

La alta descentralización que prevalece en la gestión de estos programas de posgrado y su

Notas

[1] El CEDES es una asociación civil sin fines de lucro de carácter independiente, fundada e

[2] Esta investigación forma parte de un proyecto comparativo más amplio realizado entre el

[3] Sobre la base de la frase del Evangelio según San Mateo que dice: "Pues al que tenga se

[4] Ellos son, en primer lugar, una planta docente compuesta por profesores con alta experie

[5] La actual tendencia al aumento de una administración institucional mucho más fuerte y a

[6] Siendo que en los posgrados de ciencias sociales, el número de alumnos del sector privad

[7] En las universidades públicas argentinas, sólo el 13 por ciento de sus docentes tienen ded

[8] Fue un programa (en vigencia entre 1995 y el 2000) que asignaba fondos competitivos p

[9] Mientras que los estudios de grado en las universidades públicas son gratuitos, los estudi

[10] El gasto en I&D en relación al PBI en la Argentina era de 0.38 por ciento en 1997, frent

[11] La CONEAU acredita a todas las maestrías existentes y las categoriza como A (excelent

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Committing to Class-Size Reduction and Finding the Resources to Implement It: A Case Study of Resource Reallocation

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Abstract

This article discusses how a medium-sized school district in Wisconsin was able to reallocate resources to reduce class sizes in grades K-5 without spending more money or increasing its tax rate. Previous research on resource reallocation found that the bulk of reallocated resources were those supporting categorical program services. This district was able to use a different strategy. As a growing district, its marginal costs of adding an extra class of students were much less than its average expenditures per pupil, which were reimbursed by the state school finance formula. As the district grew, therefore, it acquired excess

> revenues. Also, by implementing full-day kindergarten, the district acquired more excess revenues because this added (0.5 pupil) X (Number of kindergartners) to its current enrollment, and the cost of educating these students was less than the amount they received from the state funding formula. It then used these revenues to reduce class sizes to between 15 and 20 in all Kindergarten through grade 3 classrooms and to between 15 and 22 for grades 4-5.

Introduction

Like most districts, the Kenosha Public School District in Southeastern Wisconsin faced a number of different educational and fiscal challenges as the new millennium approached. A medium-sized urban district in the Midwest, Kenosha served a population of approximately 20,000 students in the 2000-01 school year. Demographically, its student population was 77 percent white with 11 percent Hispanic, 9 percent African American, and 2 percent other. Hispanics represented the largest and fastest growing minority group. About 30 percent of Kenosha's students lived in families with incomes below the poverty level, as indicated by eligibility for the federal free and reduced-price lunch program. Over the past decade, the percentage of students from low-income backgrounds continued to grow.

But, rather than being evenly distributed across all schools, many of the district's low-income, minority and limited-English-speaking students were concentrated in a small number of its schools. Several years ago, it became obvious that the growing concentration of educational challenges that usually accompany these demographic characteristics was making it more difficult for students in these schools to achieve the high standards set for them by the state and the district. Although a growing student population, combined with a generous state education aid program, helped ensure budget stability, the district nevertheless struggled more and more to find the fiscal resources required to deploy programs successful in boosting the performance of its students, particularly its low income and minority students.

In an effort to meet the achievement goals for all students over the 1990s, the district implemented a number of education reform initiatives. A new out-of-state superintendent who arrived in 1996 stimulated these reforms, plus, as will be shown, a number of related management and fiscal changes. At the district level, the school system shifted from a junior high to a middle school approach to ease the transition into high school; opened three new charter schools to help foster innovation and new educational approaches; and most recently, implemented a full-day kindergarten program, in part to help low-income children learn to read in the early elementary grades. At the site level, many schools began to adopt new, structured literacy programs as well as comprehensive school reform designs, such as Direct Instruction, Success For All, the Literacy Collaborative, Marva Collins and Accelerated Schools.

Although these reforms helped the district and its schools make progress toward their student achievement goals, teachers as well as district and school leaders wanted to see even greater progress. One additional reform that teachers and administrators alike believed would provide a greater boost in student achievement was class-size reduction.

Indeed, class size reduction, particularly in the early grades, was an education reform sweeping the country during this time. Odden and Picus (2000) found that 19 states and scores of districts enacted various versions of this education policy in the 1990s, believing that despite the high cost, it was a policy that research showed could dramatically raise student performance (Grissmer, 1999).

Further, Wisconsin had adopted a targeted class size reduction program in 1995 as part of a statewide approach to improve student performance, particularly the performance of its low-income and minority students. Called the Student Achievement Guarantee in Education or SAGE program, it was initially limited to schools that had 50 percent or more of its students eligible for free and reduced price lunch, i.e., from a family with a poverty level income. In the 1996-97 school year, this included 30 elementary schools in 21 districts, including one school in Kenosha. For the 2000-01 school year, the program expanded its eligibility and had a dramatic increase in funding; in 2001, it helped hundreds of schools afford smaller classes around Wisconsin.

Although there was strong support for a district-wide class-size-reduction program, there was still the issue of how to finance it. The expansion of the SAGE program provided one source. But two additional factors helped the district frame a strategy for how they could come up with the money to fund such a high-cost education reform. First, a 1994 legislative change in the federal Title I program allowed schools with at least 50 percent of its students in poverty to use their Title I funds for school-wide programs, rather than programs targeted to just its low-income students. The school-wide programs selected had to be research-based, and class-size reduction was a strategy that qualified. Second, prior to the opening of the 1998-99 school year, district administrators heard a presentation on resource reallocation in education; one of the major ideas discussed was school use of Title I funds for schoolwide programs, including both class-size reduction and comprehensive school design models (see, for example, Odden & Archibald, 2000).

The notion of resource reallocation for "whole school reform" triggered thoughts about additional programmatic and fiscal changes among many district and school leaders. The general notion was that the district could redesign schools from "the ground up" and use all of a site's resources to finance a new, research- based educational strategy, which could include small classes in at least Kindergarten through grade three. Further, a few elementary schools had access to other funds that could help reduce class sizes. In addition to Title I and the possibility of SAGE money, some elementary schools qualified for a small state program, called P5, that provided extra resources to schools with high poverty concentrations (schools could either receive P5 or SAGE money, but not both). In addition, the district knew that at the federal level, Title VI of the reauthorized Elementary and Secondary Education Act (ESEA) would provide an additional pot of money to help fund class-size reduction.

A combination of the above ideas convinced the school board in July 1998 that it could begin immediately to reduce class size in a selected number of its high-poverty elementary schools just by reallocating Title I (mainly to school-wide programs) and P-5, and using SAGE and Title VI funds where possible. They did so, and in the first year they saw a positive impact on student academic performance as measured by state and district tests.

In light of the positive results at these elementary schools, as well as even firmer belief in research supporting smaller classes (Finn & Achilles, 1999; Molnar, Smith, Zahorik, Palmer, Halbach & Ehrle, 1999, see also http://www.uwm.edu/Dept/CERAI), the district decided to find the money to reduce class sizes for Kindergarten through grade three in *all* elementary schools the following school year. Whether this was the reform that would best help all students is beyond the scope of this study. Instead, this case study tells the story of how the district was able to fund this ambitious class-size reduction initiative.

Finding the Money

Previous research on resource reallocation (Achilles, 1999; Odden & Archibald, 2000) showed that categorical program dollars—Title I, special education, programs for limited- English proficient students, etc.—comprised the bulk of funds that were reallocated, whether the goal was class- size reduction or implementing a specific whole school design, such as Roots and Wings/Success for All. Kenosha initially used this strategy as well, as it was primarily federal Title I, Title VI, and state SAGE and P5 money that allowed the highest poverty schools to begin to reduce class sizes. Studies have shown that reduced class sizes are especially beneficial for low-income and minority students (Finn and Achilles, 1999).

Believing these benefits would extend to all students, the district decided to reduce class sizes in all elementary schools, including those that were not eligible for categorical program funds, but to do so it needed a new, larger source of funding. This challenge sent the district back to analyze the workings of its overall budget as well as the state of Wisconsin's school finance equalization formula. These analyses also prompted the district to consider implementing a full-day kindergarten program. Although they had been considering this step for a long time, this decision, combined with the reality of rising student enrollments, helped the district generate the resources that would enable it to fund a larger class-size reduction strategy.

Funding for the larger class-size reduction initiative came from two sources: rising enrollment and the implementation of full-day kindergarten. In the next few paragraphs, these funding sources will be addressed in turn. First, Kenosha was able to generate resources from rising enrollments in the following way: In Wisconsin, districts receive aid on the basis of a three tiered, guaranteed tax base, school finance formula. The state aid formula functions so that in any one year, for each additional student Kenosha gains (or loses), the district receives (or loses) approximately $7000. Since the district has experienced rising enrollments in the past few years, its budget has constantly grown. And because each new student costs less than $7000 to educate, the marginal cost of educating each new student is less than the average per pupil expenditure of the district. To illustrate this point, assume the district enrolls 25 new students. The district's budget would rise by $175,000 (25 x $7000). But the district would have to hire only one additional teacher for a new class of 25 kids. This would require one teacher at an average cost of $50,000, plus the cost of 20 percent of another teacher for the first teacher's planning and preparation time, and some additional costs for materials, supplies and operations and maintenance. Assume these costs totaled $75,000. That would leave the district with excess revenues of $100,000, which would be sufficient for the district to hire close to two additional teachers, at an average cost of $50,000 each. The marginal costs for the additional 25 students were only $3000 per student ($75,000 divided by 25 students), while the average additional dollars were $7000 a child, for a possible difference between average and marginal costs of about $4000 a child.

To be sure, the above is a simplified analysis. For the numbers to work exactly, all students would need to be in the same grade level and in the same school. But since the district enrollment grew by approximately 500 students between 1999-2000 and 2000-01, a rise of 25 per grade was possible, though maybe not in each school. For these reasons, it may be true that the difference between average and marginal costs for each additional student is not precisely $4000. Even so, because of the high level of the school finance equalization formula and the phenomenon of rising enrollments, the district was in the enviable position of generating substantial excess revenues for each new student in the district. This situation was further strengthened by the fact that the district had some excess classroom space, so it did not need to build new classrooms because of enrollment growth or because of class size reductions. How the district found the space for the extra classes will be discussed later in this case study.

Another complication for the above example is that Wisconsin's education aid formula does not use the current student count in determining each district's aid, but uses the average of the number of students from the past three years. Initially, this was implemented to limit state aid losses for declining enrollment districts, but for growing enrollment districts it limits the increase in revenues as well. Thus, for Kenosha to enjoy the full measure of the excess of average over marginal cost increases, it needed a full three years. If this were the only source of new funding, the district would have had to phase in its class size reduction strategy over several years.

However, as previously mentioned, the district found another way to raise revenue for the small class-size policy that further aided all its students, but particularly its students from low-income backgrounds, which was the implementation of full-day kindergarten. In the mid-1990s, the district provided only a half-day kindergarten program. But it knew that full day kindergarten was desired by many families and also was a research-based strategy to help students from low-income backgrounds learn reading and writing in the first three years of elementary school (Slavin and Madden, 1996). Therefore, the district decided to change from a half-day to a full-day kindergarten program. This move generated more funds for class-size reduction for the same reason identified with new enrollments: having kindergartners for an extra half day gave the district additional revenues because of excess average over marginal costs. Because the state allowed the district to count the child as a 1.0 student for a full-day program as compared to 0.5 for a half-day program, the shift to a full day program essentially allowed the district to "increase" enrollments on its own. For every two students who shifted from a half- to a full-day kindergarten program, the district was able to add 1.0 (2 x 0.5) students to its pupil count. It received the full $7000 for this "extra" student, but again its marginal costs were much lower than this $7000 figure.

Another example helps illustrate this point. When a school has

20 students for morning kindergarten and 20 students for afternoon kindergarten, the school receives 40 x 0.5 x $7000, or $140,000. Assuming that the same teacher is working in the morning and the afternoon, the school will spend approximately $50,000 of that amount on the teacher's salary and benefits, plus planning and preparation time, materials, etc. which might total $65,000 - 70,000, leaving an upper-bound estimate of $70,000 ($140,000 - 70,000) in excess revenues.

When those 40 students change to spending a full day at school, the school receives $7000 for each student, or a total of $280,000. The school will now need to hire two teachers, who will each have a class of 20 students, which will cost about $140,000 ($100,000 for salary and benefits plus additional money for planning time and materials). This leaves $140,000 ($280,000-140,000) for other purposes, compared to the $70,000 that was left when the 40 students only attended for half a day. Because Kenosha had most of the necessary classroom space, the district primarily needed only to build in the cost of operating those rooms all day to cover the expenses of essentially doubling the number of kindergarten classes by moving to full-day kindergarten. As is true with the growing number of students enrolled, the marginal cost of educating kindergartners for a full day was less than the average amount that they received via the state equalization program, resulting in a net fiscal gain for the district. Again, because of the three-year average pupil count, these excess revenue numbers took three years to be fully realized.

So the district was able to take advantage of two rising enrollment phenomena to produce the revenues to help fund a district-wide class-size reduction program—first, excess revenues from naturally occurring enrollment increases, and second, excess revenues from shifting from a half-day to a full-day kindergarten program. When combined with the initial categorical dollars that were used to reduce class sizes first in the highest poverty-concentration schools, Kenosha was able to fund dramatic class size reductions without increasing taxes, eliminating other programs, or increasing its average expenditure per pupil.

Implementing the Class Size Reduction Policy

The two "new" revenue sources discussed in the previous section made it possible for the district to help fund reduced class sizes at all of its elementary schools, but implementing this initiative was complicated. First, because the excess revenues from shifting to a full-day kindergarten program would be phased-in over a three-year period, the superintendent initially advised the district to slowly implement the class-size reduction policy, making sure that the resources were there before putting the plan into action. However, the board voted to move ahead immediately because it felt that when their strategy for finding the money to do so became public information, there could be many other claims for its use—including other programs as well as teacher salary increases. Although class-size reduction was very popular with teachers, the policy would be to reduce class size for just kindergarten through grade 5, so teachers of other grades could very well have had different ideas about how to spend those dollars. Though the superintendent initially was skeptical about moving so fast, he eventually came around because he saw the wisdom of quickly implementing a popular policy—class size reduction—and avoiding a lengthy debate over alternative uses of the "found" dollars.

In order to avoid the potential delay, district and board leaders acted quickly. In July of 1999, the Kenosha school board accepted the district proposal to fund 22 new teaching positions to reduce class sizes for the following school year. This meant that the district had just over a month to hire all of these teachers plus the normal new hires for the year. It managed to accomplish this task, hiring 37 new teachers (22 for class-size reduction) in the one month before school began in September. This was one of the difficulties with trying to implement this initiative so quickly.

The 22 new teachers were awarded centrally—schools had to request these extra teachers from the office of the superintendent and explain how they would be used to reduce class sizes and what space they would use. Because the district had staffed each elementary school on a 24 students to 1 teacher basis, each school was required to use the new teachers for class sizes below that level. Some schools had the extra space, especially the high-poverty elementary schools that had declining enrollment. Other schools had to give up their art, music, or multipurpose rooms, which some schools were reluctant to do. Some sacrifices had to be made to implement this policy, but the district had made the decision to reduce class size, and to do so they needed classroom space. These initial new teacher positions helped bring down class sizes somewhat, but district leaders had begun to make long-term plans for formally reducing class sizes even further, to specific target levels.

Over the course of the 1999-2000 school year, district leaders had more time to plan the further reduction of elementary class sizes in the Kenosha School District. This time, they decided to reduce the staffing ratios for grades K-5 rather than centrally award "extra" teachers to the sites, which had produced a variety of different but lower class sizes. This district-wide policy change made the class-size reduction policy explicit for all elementary schools.

As previously mentioned, the ratio that had been in place was one teacher for every 24 students in grades K-5. In the 2000-2001 school year, with the new class-size reduction policy in place, the ratios became 20 to 1 for K-3 and 23 to 1 for grades 4-5. These ratios were set in part according to how many extra classrooms were available at the schools; although district leaders would have liked to have even lower class sizes, this was the level at which they felt schools had the appropriate extra space to accommodate the additional classrooms. The class size maximums also changed. Previously, the maximums were 27 for kindergarten through grade 3, and 29 for grades 4-6; under the new allocation formula, maximums were set at 22 for kindergarten through grade 3, and 25 for grades 4-5.

Further, in the past, when a class exceeded its maximum, an instructional aide was placed in the classroom to provide assistance. More specifically, if the class size was above 26 but not above 30, a half-time instructional aide was provided; a full-time aide was provided if the actual class size was over 30. But under the new, 2000-2001 class-size- reduction policy and class-size maximums, most of the resources for instructional aides were reallocated for the additional classroom teachers that were necessary to keep class sizes lower. The Assistant Superintendent of Instruction stressed that the district had adopted an overall value that, whenever possible, resources would be used to employ fully trained and licensed teachers rather than instructional aides. This decision was bolstered by the fact that the same research that documented the effectiveness of small classes also showed that adding an instructional aide to a larger class provided no effect on student performance (Achilles, 1999). Indeed, many of the elementary schools that received Title I funds eliminated instructional aides and used their Title I funds to hire teachers instead. In Kenosha, it takes the resources for about two full-time aides for a school to hire a licensed teacher.

For the low-performing schools in Kenosha, class size targets were set even lower than at the other elementary schools. Kenosha defined low-performing by student performance on the Wisconsin Knowledge and Concepts Examination, a statewide testing system using the Terra Nova commercial test. All schools with an average WSAS score below the state average were categorized as "low-performing." Even before the district changed its staffing allocation formula, these schools, because they had the highest poverty concentrations, had access to all of the previously mentioned categorical program dollars that could be used to help fund class-size reduction: Title I, Title VI, P-5 and SAGE.

The district class-size goal for low-performing, high- poverty schools was set at 15, with a maximum of 18. This maximum was set because schools receiving Title VI funds, the federal class-size reduction program, had to reduce class sizes to 18 or lower. Thus, the district class-size goal for the low performing schools is lower than the federal requirement. The extra funding from SAGE, Title I, Title VI and P-5 that these schools received was used to enable the district to reduce class sizes to 15 in many of its low-performing schools. However, because there are more low-performing elementary schools in the Kenosha School District than resources to reduce class sizes to those target levels, the district focused on reducing class size to these low levels at the lowest performing schools first.

As of late 2000, the district had made significant progress in reaching its lower class size goals. Of the 24 elementary schools in the district, one had class sizes of 15 or lower, eight more had class sizes of 18 or lower, 11 had class sizes of 20 or lower, and four had class sizes of 22 or lower. Thus, all elementary school class sizes were below the maximum of 22 for grades K-3, and well below the maximum of 25 for grades 4-5. Further, while only one high- poverty school had an average class size of 15 or lower, all elementary schools at which the majority of students are low-income had class sizes of 20 or lower.

For many elementary schools, the combination of the new, lower staffing ratio and the reallocation of categorical funds has meant a dramatic reduction in class size and a feeling of optimism about the subsequent effect on student achievement. For example, at Wilson Elementary School, where 86 percent of the students qualify for free or reduced-price lunch, class sizes have been reduced from an average of 21.9 in 1998-99 to an average of 16.4 in 2000-01. In order to reduce class sizes that far, the school needed a total of nine more classroom teachers in 2000-01 than it had in 1998-99. The reduction in class size was possible because of the change in the staffing formula and the allocation of categorical funds for class-size reduction. Enrollment growth does not explain any of the new teachers for 2000-2001; Wilson had only 10 more students in that year than in 1998-99. The school received three additional teachers for 2000-01 because of the new staffing allocation formula. The other six teachers were paid for with categorical funds: one with other district funds for class- size reduction, two with federal Title VI funds, 2.5 with SAGE funds, and

0.5 from Title I. The district funds for class-size reduction were the result of a board decision that 30 new teachers would be hired for the 2000-2001 school year; Wilson got one of those teachers. It is also interesting to note that this had formerly been a P-5 school, but they traded in that status in order to qualify for SAGE since they were able to hire more teachers with those funds.

By concentrating many of its resources on class-size reduction, Wilson was able to lower class sizes to an average of 16 students. This is noteworthy because it is within the range of 13-17 identified by the Tennessee STAR study as being especially effective at raising student achievement levels and producing other favorable outcomes (Finn & Achilles, 1999; Grissmer, 1999).

Class sizes have also been significantly reduced at Vernon Elementary School, where 36 percent of students qualify for the free and reduced-price lunch program. Although this is a significantly lower percentage than at Wilson, Vernon still receives substantial categorical funding. As was true at Wilson, it is this funding in combination with the district's lower staffing allocation formula that has allowed Vernon to reduce class sizes from an average of 27 in 1998-99 to an average of 18 in 2000-01. Enrollment has stayed virtually the same over this time period; 468 students attended Vernon in 2000-01 as compared to 472 in 1998-99. Therefore, none of the 10 additional teachers on staff at Vernon in 2000-01 can be explained by enrollment growth. Instead, four of the teachers were a result of the change in the staffing ratio from 24 to 1 to 20 to 1; one was paid for using the additional district funds for class- size reduction; one was paid for with federal Title VI funds; three were paid for with Title I; and one with P-5 funds. By concentrating its funding sources on class-size reduction, Vernon was able to reduce class sizes by a remarkable nine students per classroom.

Initiatives Supporting Class Size Reduction

In addition to getting class sizes down to desired levels, part of the implementation process is to provide teachers with professional development that will help them teach their small classes more effectively. Leaders in Kenosha knew that research has shown that teachers can help produce additional achievement gains when professional development in small-class instruction is provided (McRobbie, Finn & Harman, 1998; Bearl, 1998; U.S. Department of Education, 1998). The Assistant Superintendent of Instruction stressed the importance of this aspect of implementation, and has continued to seek School Board support for substantial investments in professional development in order to help realize the potential of better instruction in the smaller classes. Title VI, the federal funding source for class-size reduction, allowed districts to use 15 percent of its funding for professional development in 1999-2000; although district administrators thought this would be a good idea, the board voted to use all the funds to pay for teachers in the first year. However, for the 2000-2001 school year, districts were allowed to use up to 25 percent of their Title VI funds for professional development, and this time the board agreed, in part because the funding had increased and they were able to hire almost as many teachers and have money leftover for professional development. The district was able to allocate $137,000, or approximately 25 percent of the federal money they receive for comprehensive school reform, toward professional development programs designed to improve instructional practices in small classrooms. This money made it possible for 700 of the district's 1600 teachers to participate in such professional development activities as Everyday Mathematics training.

Further, the district has continued to encourage all schools to adopt some type of "whole school" educational strategy to accompany both the above professional development and small class sizes. For example, for the 2000-2001 school year, the district provided $299,000 in grants to schools without P5 or Title I funds to help them afford various school reforms, including comprehensive school reform models. This district's commitment to raising student achievement scores is apparent through the creative use of all of their funds to make changes that they believe will boost student achievement.

Monitoring Results

Although the superintendent and other district leaders have made class-size reduction a priority in Kenosha elementary schools, they recognize that it is just one reform to be used in conjunction with other reforms for a common purpose: to boost student achievement. For that reason, student achievement scores are carefully measured and reported in order to track the success of these reforms. In 2000-01, students at Kenosha elementary schools took the Iowa Test of Basic Skills (ITBS) in grades 2, 3, and 5; the Wisconsin 3rd grade reading test, and the Wisconsin Knowledge and Concepts Examination (WKCE) in 4th grade. The district placed the most emphasis on the 3rd grade reading test and WKCE. Each school had benchmarks that they were working toward, which were set in terms of the percent of students at proficiency level and the percent advanced. Awards were given to schools that increased these percentages by five percent annually.

Student achievement growth has been substantial at many Kenosha Elementary schools, including Wilson, one of the schools used as an example in the last section. In addition to reduced class sizes, Wilson has used the principles of the Marva Collins school design for the past few years, and has more recently adopted Direct Instruction for reading, and Core Knowledge as a curriculum guide. In the 1997-98 school year, only 17 percent of Wilson students were considered proficient on the third grade reading test. In 1999-2000, 51 percent were at or above proficiency—a dramatic improvement of 34 percentage points.

Columbus Elementary School, a school with 58 percent of students who qualified for free or reduced-price lunch in 2000-01, has also made great strides. Funded by their categorical dollars, Columbus has had reduced class sizes for three years. The school chose class-size reduction rather than a comprehensive school reform model, and is now listed in the high achievement category for the WKCE in Math. The state average score for percent proficient in math is 52, and 68 percent of Columbus students scored at or above proficiency (Barth, Haycock, Jackson, Mora, Ruiz, Robinson, & Wilkins, 1999). This is the best indication so far that the policy to reduce class sizes in Kenosha will boost student achievement in all schools, as it has at Columbus Elementary. In addition to Columbus and Wilson, student achievement has risen at many other Kenosha schools, in part due to initiatives like class-size reduction and comprehensive school reform models.

Conclusion

Leaders in the Kenosha School District in Wisconsin managed to significantly reduce class size in the majority of their elementary schools—by creative resource reallocation and deployment of all the revenues made possible by student demographic characteristics and the state's school finance system. In the 2000-01 school year, more than one-third of Kenosha's elementary schools had class sizes of 18 or lower, and all 24 schools had class sizes at or below 22. Although individual schools in this district had begun to reduce class size school-by-school by reallocating Title I and P-5 funds and using Title VI and SAGE, the district-wide change to a lower elementary school staffing allocation formula made sure that class sizes were reduced at every elementary school, and to lower levels than the schools could have afforded with just categorical dollar reallocation.

The major revenue source for this expensive policy was excess revenues derived from the combination of growing enrollment and the shift from a half-day to a full-day kindergarten. For every new student, the marginal cost of educating that student was approximately $3000 but the district received an extra $7000 via the state school finance formula, or an excess of average over marginal costs of $4000 per child. The total combined district enrollment growth from these two phenomena—natural growth and kindergarten expansion—was about 500 students a year. This produced excess revenues of nearly $2,000,000 (500 students times $4000/student), which was sufficient to hire 40 additional teachers at an individual cost of $50,000 in salary and benefits. This quite ingenious way to fund smaller class sizes, combined with additional dollars from selected categorical programs—federal Title I and Title VI, and state SAGE and P5—allowed for even lower classes in the highest poverty, lowest performing schools, reaching the level of 18 or lower in nine of the district's 24 elementary schools. District leaders hope that the positive results from Columbus Elementary School, which has had lower class sizes in place for three years, will be replicated in elementary schools district-wide.

This case shows how important it is for district leaders who want to make changes using reallocated dollars to have full knowledge of the district budget and how that budget is derived. In Kenosha, district leaders decided to reallocate categorical dollars to class-size reduction, but they needed an additional source of funding to reduce class sizes to target levels. They were able to find that additional funding source because they understood the principle that "new" students, whether from natural enrollment growth or the shift from half-day to full-day kindergarten, could produce "new" dollars because of the excess of average over marginal costs. These changes enabled the district to provide full-day kindergarten and reduce class sizes in all elementary schools, initiatives that research shows are particularly powerful in helping students from low-income backgrounds learn to read and do mathematics in the early elementary grades (McRobbie, Finn, & Harman, 1998; Slavin and Madden, 1996; Slavin, Karweit and Madden, 1989).

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Globalization, Consumers, Citizens, and the "Private School Advantage" in Argentina (1985-1999)

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Abstract
Local actors' perceptions of curricular and management changes in two private schools and one neighboring public secondary school in the city of Buenos Aires, Argentina, are analyzed. An exploration was conducted of how, within an ideologically and politically pro-reform context and a widespread acceptance of the "private school advantage," principals, teachers, and students in these schools evaluated the changes (or lack of them) in management, teaching, and curriculum orientations of the secondary education sector.

Introduction

In the debate over implementing "choice and free-market" mechanisms to correct the deficiencies of pu

In some countries, and in spite of Adam Smith's recommendations the once quixotic aspiration that ev

The coexistence of public and private schools as compatible providers of education, each targeting a di

By conducting an exploratory qualitative study of public and private high schools, this project aimed at

The empirical data are drawn from three schools and, consequently, can not provide broad-based concl

In the attempt to map and locate the changes happening simultaneously at the local and global level usi

I. The "Private School Advantage"

The notion that the provision of educational services should be regulated by the market or in a competi

Perhaps no other work has contributed more to that debate in the USA and abroad than *Politics, Marke*

Chub and Moe's proposed solution is to incorporate market-like incentives and discipline in education

> The central argument ... is that the success of any human organization depends on the unificatio

The assumption is that a quasi-market will wisely solve contemporary educational problems since pare

There are, however, numerous objections to the implementation of market-like proposals and to increas

> The emphasis on equality means that the focus in education is on the bottom of the performance

The pro-market choice model advanced by Chubb, Moe, Coleman and others relies heavily on what Jo

- Better performances on standardized tests;
- Higher graduation rates;
- More rigorous academic environments;
- Safer schools;
- More opportunities for their parents to participate;
- More access to morally uplifting surroundings (very often in association with religious based tea
- More access to highly motivated teachers and administrators (motivation based on efficient and l

The works of Chub and Moe, Viteritti and others indicate that in general, there is a strong widely held

> Because private schools can select (and are selected by) their students, analysts have not been abl

Rothstein, Carnoy and Benveniste also noted that solving the debate about the reasons for the supposed

> My reading of the theory and empirics of literatures concerning educational production functions

Privatization, market-like options, choice programs, and vouchers are at the forefront of the education

Without doubt, these actions ,which tend to the partial or total marketization of the educational sector c

These reform proposals are made not only by the staff of think tanks, the media, and government offici

It is at this crossroads of global neo-liberal reform proposals, generalized beliefs about the distinct perc

II. Argentina's Search for "Modernity"

Argentina is a country of 35 million people, and it has one of the lowest population growth rates (1.6%

The old optimistic picture was eroded by a profound stagnation in production that led to a steep

Unfortunately, Schvartzer is not alone in his description of the country's political, social and economic social discussion.

After World War II, as in most countries in Latin America, Argentina's society debated and in many ca

(1) social modernization (economic growth with the incorporation into the world market, urbaniz

Not surprisingly, during the second half of the 20th century, the prevailing models of development and

In Latin America, the modernization approach required the identification of sectors or areas which wer

First, the State itself has to become modern and encourage appropriate civic behaviors through rational

Between the 1930s and 1960s, the Argentinean State played an important role in such a selective proce

Nevertheless, this modernization model did not last long in Latin America and its weaknesses became

The financial crisis of the 1980s, the lack of social and political effectiveness of many of the dictatorial

During the 1980s, the region witnessed a cycle of inflation, hyperinflation, and recession of a severity

Doubtless, the early 1980s were crucial in Argentina. The financial crisis, the Malvinas (Falklands) Wa

Nevertheless, this model of stabilization and adjustment which emerged after the so- called "Washingt

By the end of the 1990s, the policies of economic and financial stabilization and adjustment had also in

During President Carlos Menem's governments (1989-1999), Argentina experienced an accelerated pr

Most of those changes were justified as the only possible solution to the economic problems of the cou

In addition to these economic measures, it should be noted again that the problem of achieving the "rig

The macro-economic indicators have changed and according to external observers they have improved

Important transformations existed not only in the economy but also in the education sector. The "new

III. Notes on Data Collection

The data for this research were gathered during two three-month periods and through school observatio

The selection of these three schools was based on geographical proximity and similarities in student po

It should be noted that—even though this limits even more the results of this research—none of the tw

In addition to the activities carried out within the secondary schools, the researcher interviewed the dir

IV. In Search of Educational Modernity

An anecdote illustrates some of the pivotal points in which the search for "educational modernity" was

> May 1993: visit to the ministry of education for interviews. I have to wait for the "customary" 30

> Despite the content of this measure, the initial reaction of this researcher was: "This is a change f

These notes contain some of the tensions developed in the process of searching for a new model of edu

The first such initiative occurred in 1992 when the federal government developed a process of decentra

At first glance, through this transference the federal government, would transfer power by not controlli

> [H]as retained responsibility for four major areas: set of common contents, evaluation of outcom

There is a general consensus among researchers that the decentralization process initiated in 1992 paral

It is relevant to quote Hanson's account of how the decentralization process took place: "The transfer o

The second initiative was the sanction of the Federal Law of Education, the major legal education refor

The structure of the academic system: Previously, elementary school was mandatory for 7 years and

The curricular standards: The Law establishes the criteria for the development of the minimum requi

Teachers' Professional Development: A national network of teacher professional development activit

Development and implementation of a national system of assessment: The national ministry of edu

The economic-financial rationale and pro-private overtones of both laws were widely recognized in the

> First of all, it is possible to say that the private education sector has benefited from the implemen

While debate of the law was taking place, the government was firmly committed to the implementation

In all of these quality evaluations (Mendoza, SINEC National, and other smaller evaluations), the resul

More importantly, as the data in Table 1, 2 and 3 illustrate (especially given the objectives of this resea

Source: Llach, J. J., Montoya S., and Roldán, F. *Educaciń Para Todos*, Córdoba, IREAL, 1999.

Source: Argentina Ministerio de Cultura y Educación (1998)

Source: Argentina Ministerio de Cultura y Educación (1998)

The initial outcry about the results was followed by a great media battle over whom to blame. Teacher

In Argentina, the participation of the private sector in secondary education is quite important and enroll

Source: Argentina Ministerio de Cultura y Educación (1998)

Since 1970, enrollment in private secondary schools has stagnated, yet the number of schools has incre

The Principals

The interviews with the principals of the three schools revealed two main trends. The first trend refers t

The first trend requires some background information. What distinguishes the case of private schools i

> Principal Public School PS: It is scandalous that the government spends money in (name of priva

For both principals in the private schools, (thereafter Mountain-view and Lake-view) the public subsidi

> Private School Mountain- View principal: The subsidies are important, without them we cannot

During the period 1995-1998 the school of principal of Mountain-view saw a small decrease in the nu

> Question: In your opinion, is the private sector trying to reach other social sectors, the lower mid
>
> Private Schools Consultant: I do not see any interest in reaching the lower middle class, at least i

This consultant reflection pointed out to the sad reality of the absolute imperfection of Argentina's edu

In light of the opinion of the private schools' consultant it is not surprising, then that the principal of M

In the case of the principal of Lake-View school the subsidy was also seen as needed but with the addit

> Private School Lake-View principal: I would love to get ride of the subsidies, but we can't. No s
>
> Question: What would be the advantage of not receiving subsidies?
>
> Lake-View principal: Some schools are trying that. The first advantage is that there is no more re

Despite the difference of opinion about the role of the state subsidies, the principals of the three school

> Mountain-View principal: You know, in the private schools it is easier to find room for innovati

When the first part of the fieldwork for this study was undertaken, the debate about education (or the cr

> Question: How do you evaluate the performance of private schools in general given the results of

Mountain-View principal: The important thing here is to recognize that our school is doing the w

Question: How do you explain that on average the scores of students in private schools and publi

Mountain-View principal: Well the problem is the test and its evaluators. The tests were prepare

Similarly, the principal of the public secondary school expressed discomfort when asked about the nati

Question: What do you think about the quality of education evaluations?

Public School principal: I don't like the use of these tests; it is all political…we need to ask why

As these testimonies indicate, the principals in the private and public schools shared concerns about the

The idea that private schools have more flexibility than public schools o change or adapt the academic

The three principals were very concerned with security and discipline as a way of improving the condit

It is very likely that the concern with discipline expressed by the principals was a response to a few vio

The Teachers

The interviews with teachers confirmed the trend about the "private school advantage" but also reveale

Teresa P., a female teacher, has been teaching history in private and public schools for more than five y

Question: Where do you feel better? At the public or at the private school?

Teresa P.: Nowhere; I have the same problems, the place doesn't matter, the same low salaries, t

Question: Can you think about any difference?

Teresa P.: In the bathroom [laughing] and that is serious! I mean the lack of investment that you

The testimony of Teresa P. exemplified a common pattern expressed by several teachers during the cou

A possible explanation of the "society first" trend can be found in the severity of the country's financia

There is a national trend of a prolonged decline in the real salaries of teachers from the mid-1970

In the late 1990s, teachers were earning a third less than an average worker in the formal economic syst

Teachers were blamed for declines in student achievement and lack of consideration about students' w

It is in this context that the relationships between teachers and parents and teachers with administrators

Returning to the central focus of this research, the comparison of the perceptions between secondary pu

Carlos P. (Lake-View): I started my career full of energy! I felt that teaching was my mission, m

Question: Anything else?

Carlos P.: Oh yeah! But it is not what you are thinking about! At Lake-View you have someone

Question: What do you mean?

Carlos P.: Students, not all of them, but some, sometimes mistake the fact that they are paying fo

Question: Do you consider that as a challenge or that this kind of pressure makes you change yo

T.2PrII: Oh no! At the public school you have something similar, teenagers are always challengi

This teacher's testimony captures several key questions for this research. Is it possible to frame public

Finally, in the interviews with teachers it is difficult to asses any significant difference in terms of priv

Autonomy is an issue that does not clearly distinguish public from private education. The freedo

The Students

The findings from focus groups and interviews with students from public and private schools revealed

As in the case of the principals, a similar strong belief was reported about the private school advantage

Sudent.1-Lake-View: my parents are always reminding me how much my school costs, and I tell

A male student in his last year of secondary public school reflected about his experience in the followi

Student.2-Public School: If you look around this school, you will see how depressing it is to be h

When questioned about possible differences between students in private and public schools Student.2 i

Student.2-Public School: If I have to judge from my friends that go to the private school, I think

The comments of Student.2 are illustrative of a strong tendency among the students. They do not know

The testimonies of Student1 and Student2 are clear examples of the disappointment with schooling, wh

Student.3-Public School: I support teachers demands for better salaries, no doubt that the govern

Question: Do you think that your teachers are going to participate in the protests?

Student.3-Public School: My teachers? No, … most of them are scared and old- fashioned. They

The notion that teaching is a noble profession—but somehow the real teachers working at real schools

Student.4-Lake-View: No, teachers here are teachers.

Question: What do you mean by "teachers are teachers"?

Student.4-Lake-View: … They don't want to risk anything, they do everything the principal tells

Student.4-Lake-View: Yes, she is totally right, there are days we spend as much time sleeping in

The previous testimonies are consistent in showing dissatisfaction with schooling and authorities in ge

> Student.5-Public School: It couldn't be different, we share the same teachers!
>
> Sudent.6-Mountain-View: Yeah! Mr. Pepe teaches the same nonsense here [private school] and t
>
> Student.5-Public School: Besides, you know, we are experts!
>
> Question: What do you mean?
>
> Student.[illegible]-Public School: You know, cheating is very common; I think that when we finish scho

To sum up this section, students from public and private schools consistently supported the notion of th

V. Conclusions

This research was conducted to assess the extent of curricular and management changes in two private

It is important to restate that this study did not intend to provide generalizable conclusions valid for all

After reviewing all the evidence gathered, the presumed capability of private schools in absorbing incr

Besides supporting the "private school advantage" notion, both teachers and students in these three sch

Contrary to what the "free-market" literature predicts, in the case of these three secondary schools in B

The findings of this study are also consistent with the results of Glass's (1997) study about public and

> [T]he social, cultural, and economic backgrounds of the parents and the community in which the

The three schools studied in Buenos Aires operated in a context in which their pedagogical and admini

The importance and influence of the current debate in Great Britain and the USA about markets and ch

In the current globalized capitalism, the pressures to transform the models of modernization, the role of

Under these disciplinary constraints the contemporary Latin American state can be best characterized a

Financial institutions such as the World Bank and the International Monetary Fund respond to the polic

> Established Western societies are no longer optimistic that the Welfare State can effectively assis

As the current North American debate over vouchers and choice initiatives shows, the pro- market initi

At this point, with the available evidence from this small research in Argentina, and the international e

> When the available information is assembled in the U.S. and abroad, the evidence suggests that "

The findings of this research support Carnoy's remarks. It appears evident, then, that in the case of Arg

I would, however, recommend that further studies about this topic follow Adam Przeworsky cautions r

This is a threefold question: (1) What are the economic costs of such transformation? (2) Under what p

We have no theory of structural transformation, and the empirical evidence is scanty. Market ori

I would like to conclude that today, nine years after Pzreworsky's contention, the empirical evidence is

Notes

1. The notion of the so-called "Lost Decade" is very problematic and misleading. In Argentina, dur
2. The continuous demands by several national human rights groups as well as the investigations of
3. Cheating in secondary schools appears to be very extensive. For some of my respondents (teache

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Autonomy and Accountability in the Context of Standards-Based Reform

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Abstract

In this article we discuss the effects of one urban school district's efforts to increase the autonomy and accountability of schools and teams of teachers through a standards-based reform known as team- based schooling. Team-based schooling is designed to devolve decision-making authority down to the school level by increasing teachers' autonomy to make decisions. Increased accountability is enacted in the form of a state-level standards-based initiative. Based on our evaluation over a two-year period involving extensive fieldwork and quantitative analysis, we describe the ways that teachers, teams and school administrators responded to the implementation of team-based schooling. What are the effects of increasing school-level autonomy and accountability in the context of standards- based reform? Our analysis highlights several issues: the "lived reality" of teaming as it interacts with the existing culture within schools, the ways that teachers respond to the pressures created by increased internal and external accountability, and the effects of resource constraints on the effectiveness of implementation. We conclude by using our findings to consider more broadly the trade-off between increased autonomy and accountability on which standards-based reforms like team-based schooling are based.

I. Introduction

The standards movement was one of the key reform strategies developed in the 1990's as states and districts sought ways to raise student achievement. The essential elements of reforms in this paradigm are threefold. First, a set of clearly defined student performance goals for schools to strive towards (usually content standards). Second, an accountability system comprising a set of incentives for schools or districts to achieve the standards and accompanying penalties for failing to move towards them (rewards and sanctions). And third, greater autonomy for districts and schools make decisions that will enable them to improve instruction and achieve the standards (Fuhrman, 1999; CPRE, 1996; Fuhrman & O'Day, 1996).

While earlier reforms were characterized by either a "top-down" (i.e. mandates) or "bottom-up" (i.e. local control) approach, standards-based reform combines both approaches to enable states and districts to define the focus and expectations for educational outcomes and to hold educators accountable for meeting these aims (Fullan, 1994). At the same time, policy makers recognise that instructional improvement needs to be motivated and developed at the school and classroom level and they are developing ways to give schools and teachers increased autonomy to make decisions that affect student learning.

In this article we ask the question: What are the effects of increasing school-level autonomy and accountability in the context of standards- based reform? We investigate this question by exploring the experience of the school district of Cincinnati, Ohio's efforts to expand the autonomy of schools and teachers and construct a framework of accountability within the context of a broader standards- based reform initiative. The district's efforts to increase autonomy at the school and classroom-levels is focused around a reform called team-based schooling in which teachers are organized into teams of three to five teachers who take responsibility for a group of students over multiple years. The expectation is that teachers know best how to serve the needs of their students and should therefore be given greater flexibility and authority to make decisions that affect their students' learning. Teaming is part of a broader standards-based reform movement in the district featuring an explicit set of achievement targets for schools and rewards and sanctions tied to a school's success or failure in achieving their goals. In this article we describe some of the consequences, both intended and unintended, which arise as the theory of increased authority and accountability plays out in the classrooms of Cincinnati's public schools.

In section II, we set the context for our analysis by briefly describing the track record of site-based management in general and team-based schooling in particular. In section III we describe the design of *Students First*, the Cincinnati Public Schools' ambitious standards-based reform initiative designed to increase local autonomy within a framework of accountability. In section IV we analyze the consequences, both intended and unintended, of increasing local autonomy. Section V explores the effects of expanded accountability, both internal and external. We conclude by summarizing the findings of our research and discussing the implications in relation to the trade-off between increased accountability and increased autonomy on which standards-based reforms like teaming are based.

Method

The source of the data for this article come from an evaluation of team-based schooling in Cincinnati, Ohio being conducted for the Cincinnati Public Schools by the Consortium for Policy Research in Education (CPRE) at the University of Pennsylvania. Since 1997, CPRE has been documenting the evolution and effects of team-based schooling in Cincinnati. This article draws primarily from the first two years of our evaluation and is based on five data sources. First, the CPRE research team conducted extensive fieldwork in the district. During the first year of the evaluation we visited all of the eight team-based schools and interviewed administrators, members of the Instructional Leadership Team, and the full membership of a sample of 16 teams. In 1998-99, the second year of teaming, the research team spent four to five days in each of the 20 team-based schools and interviewed the full membership of a sample of 41 teams.

The second data source for this article is the survey we conducted each year with all faculty in both team-based and non-team-based schools. The response rate varied from 81 to 87 percent each year respectively out of a total of approximately 2,500 faculty. Survey results enabled us to compare team-based with non-team-based schools and has allowed us to examine the longitudinal effects of teaming.

Third, we conducted interviews with the leaders of the Cincinnati education community including leaders of the Cincinnati Public Schools (CPS), the Cincinnati Federation of Teachers, CPS school board, and the Mayerson Academy which is the key provider of professional development to support the implementation of team-based schooling. Interviews focused on leader's perceptions of what team-based schooling would accomplish, the factors that influenced its implementation and impact, and the progress of the reform.

The fourth data source was student achievement, attendance, and discipline information provided by the district's Office of Research. Data were analyzed using hierarchical linear modeling (HLM) to examine the relationship between teaming and student achievement at the school and team level. Finally, we observed Interschool Council Meetings, attended team-based schooling workshops run by the Mayerson Academy and related initiatives produced by the district and union.

Our purpose is not to report in detail the findings of CPRE's three year evaluation of the team-based schooling initiative in Cincinnati. Those interested in further details can read the evaluation reports (Supovitz & Watson, 2000; Supovitz & Watson, 1999; Supovitz, 1998). Rather, r we focus here on the implications of the Cincinnati experience with respect to the trade-offs and tensions inherent in expanding autonomy in a tighter accountability framework within the context of standards-based reform.

II. The Trend Toward School-Based Management

Many districts have attempted to increase local autonomy based on the theory that school personnel are most intimately knowledgeable about the best way to educate their students. Mohrman and Wohlstetter (1994) described various types of devolved management structures that have been adopted in the past under the general rubric of school-based management (SBM). SBM requires new forms of governance and management structures within districts and schools, structures that are designed to change the decision-making processes and relations of power. This reform movement operates under the belief in the ineffectiveness of locating power at the top of a school system, where it is furthest from school faculty who are closest to, and therefore most able to influence students. SBM is intended to create structures that support site-based decision-making so that school-based administrators and teachers have greater control over the decisions that affect student learning. SBM is not a new idea, having been implemented in various guises throughout the 1980s and 1990s (Weiss, 1992). But what is different in this latest incarnation is the melding of local autonomy with a system of accountability (Fullan, 1994).

Newmann and Wehlage (1995), in a large study of 1,500 schools, noted that successful schools tended to create a professional community with shared purpose and high levels of collaboration. They noted that successful schools required the authority to act, and had high levels of autonomy over curriculum, school policies, hiring, and, in some cases, their budget as well. Surrounding this cocoon of autonomy, they also cited the importance of external support in the form of high standards for student learning.

Chub and Moe (1990) argue that private school teachers experience higher levels of autonomy than their public school peers and that this is a key reason why private schools are able to more successfully promote student achievement. In a comparative study of teachers and principals in both private and public schools that set out to test Chubb and Moe's thesis, Glass (1997) found that both participants said they experienced high levels of autonomy. However, they also found that teachers in private and public schools were also subject to a number of factors that mitigated and shaped their autonomy in important ways. Thus, the autonomy experienced by teachers was more complex than typically assumed and "challenges the myth that teachers and principals in private schools enjoy autonomy and freedom from democratic bureaucracy that their public school counterparts do not" (p.1).

Other studies also question whether SBM actually increases school and teacher autonomy. Hannaway (1993) presents a critique of the existing assumptions on which decentralization is based, assumptions that are derived from private sector modes of production.

Hannaway argues that decentralization is based on the assumption that teachers' work is traditionally subject to a high level of control and that the limited autonomy of teachers serves to limit their ability to instigate the kinds of change and innovation necessary to promote student achievement. Decentralization and (so-called) greater teacher autonomy aims to give teachers greater control over how they teach. In contrast, Hannaway concludes that, "teachers in successful decentralized districts work under conditions where organizational controls over their behaviour are in fact high relative to what we would expect in traditionally organized schools. Indeed, the discretion of school-level actors in many decentralized systems may be far more restricted than the discretion of school-level actors in traditionally organized systems" (1993, p. 139). In other words, she contends that decentralization *decreases* the amount of autonomy that teachers have to decide what and how to teach and that this occurs through the increased surveillance of their work at two levels: by their peers and by the district through tighter accountability measures. Merely providing increased opportunities for interaction between teacher professionals will not necessarily result in productive work and change.

The literature that examines the development and implementation of various forms of SBM also points out that the key aim of such designs should be to improve the quality of teaching and learning within schools. In other words, for SBM to be successful, it must not be merely a structural reform, but one that results in instructional change at the classroom level. Darling-Hammond (1996) described in some detail four New York schools that have successfully introduced decentralized, site-based management reforms as a means of creating more consensual decision-making and greater autonomy for schools and teachers with the purpose of approaching teaching and learning in distinctive ways. The success of these schools, argues Darling-Hammond, is that the primary focus of their changes is to create the opportunities for improved teaching and learning.

Team-Based Schooling

One of the particular school-based management strategies that have been developed in an attempt to provide an instructional focus is the use of teacher teams. Teacher teams are designed to enable teachers to have greater involvement in the management and governance of their school and are also intended to facilitate instructional change and innovation as teachers work more closely together to learn from each other. Educators have been experimenting with the "bold new venture" of team teaching since the 1960"s (Thomas, 1992; Beggs, 1964), but with little success (Thomas, 1992). The early failures of teaming were attributed to a lack of organizational support, planning time, and role conflict (Hargreaves, 1980; Cohen, 1976).

The last decade has seen a resurgence of interest in teaming largely as a result of the apparent success of production teams in private enterprise and the attempts by some administrators to apply teaming to schools (Mohrman & Wohlstetter, 1994). Darling-Hammond (1994) gives an account of a number of schools who have used teaming successfully in order to create more consensual decision-making and greater autonomy for schools and teachers. More importantly, however, they have used teaming to enable more interdisciplinary learning for students and to also promote teacher learning which is essential for instructional change.

Friedman (1997) offers a detailed account of one teacher team that developed an innovative vocational design within an urban high school. Friedman argues that teaming requires changes to traditional teaching roles and school structures and that these changes are more complex than those typically envisioned by the proponents of teaming. The success of teaming therefore appears to depend on it not being merely an organizational or structural reform, but one that promotes and supports changes in how teachers teach. Friedman's research alerts us to the need to consider not only the assumptions and intent behind team-based schooling initiatives, but also the existing structures and cultures of schooling that they are enacted upon. Teachers are not passive recipients of reform, but they actively negotiate and mediate policy in a range of ways. It is not so much that policy is enforced from above, but rather that teachers enact policy in a range of ways that result in unintended and intended consequences. As Friedman observed:

> ... few advocates have inquired seriously into the team concept and exactly how it fits with school practice. This lack of conceptualization is particularly serious in light of the failure of the initial team-teaching movement of the 1960s, which has been attributed to a lack of fit between the team concept and the role of the teacher, the organizational structure, and the cultural norms of contemporary schooling (1997, p. 335).

This report enables us to undertake the kind of enquiry that Friedman argues is necessary if we are to further our understanding of the effects of the implementation of team-based schooling. If teaming is to be effective, it must result in instructional innovation and improvement. For this to occur, such a reform needs to attend to the relations of power that operate within schools.

III. Autonomy and Accountability in The Cincinnati Public Schools

Cincinnati, Ohio is an urban school district with about 50,000 students in 79 schools. About two-thirds of the students in the district, of which 70 percent are African-American and 28 percent are White, are on lunch assistance. Cincinnati is the forty fifth largest city in the United States. In the 1996-97 school year the Cincinnati Public Schools (CPS) adopted an ambitious and broad-based reform plan called *Students First*. The stated goals of *Students First* were for all students to meet or exceed high academic standards, to have safe and orderly school learning environments, and to satisfy the needs of their "customers" - students, parents, and taxpayers. As a central part of its strategic plan, the CPS designed a form of school organization known as team-based schooling. In essence, the idea behind team-based schooling is that higher student achievement will result from decentralizing decision-making about instruction and resource authority to teams of academic teachers. The teams are to focus on the district's academic and behavioural standards, to collaborate amongst themselves as well as with parents and community members, and to be held collectively accountable for their students' achievement over time.

As stated in the district's strategic plan, the organization's reform goal was to become a, "high quality education system that is decentralized and held accountable for results."

The "heart of the system" according to the former superintendent, is team-based schooling. Team-based schooling is written into the contract between the CPS and the Cincinnati Federation of Teachers, ratified in March 1997. The contact sets out the requirements for the composition and function of teams, as summarized below:

- Teams will be comprised of 3-5 core subject academic teachers who will stay with a group of students for at least two years. The teams will be organized by the gateway grades K-3, 4-6, 7-8 and 9-10.
- Teams will develop a curriculum and instructional methods and materials consistent with a school's program focus. They will also decide how to schedule and group their students.
- Teams will take responsibility for all students they serve and will work to ensure that they meet the district and school learning objectives.
- Teams will control funding for instructional supplies, materials, and personnel.
- Teams will stay together for several years in order to ensure maximum benefits from collaboration and longer term relations with students.
- Team-based schools will be governed by Instructional Leadership Teams (ILT), comprised of team leaders, the principal, two parents, and two non-teaching school staff. The ILT will attend to academic decisions and control most non-personnel budget areas.

The district planned to "roll out" the team-based school concept across the district, beginning with the eight schools that were selected from a pool of those that applied in 1997-98. Twelve additional schools became team-based in the second year (1998-99), and twenty schools in the third year (1999-2000). At the time of writing, in the third year of the reform, the implementation has proceeded as planned and approximately half of the district's schools are team-based.

It must also be noted that teaming is not a new phenomena in the Cincinnati Public Schools. Our 1999 teacher survey data show that in Cincinnati 79 percent of elementary teachers, 73 percent of middle school teachers, and 45 percent of high school teachers who were not in formal team-based schools reported that they informally teamed with at least one other teacher. What is different is that team-based schooling creates a formal structure in schools that explicitly vests power in teams of teachers to make instructional decisions for students.

At the same time, the state and district had accountability systems in place that ranked the performance of schools and attached consequences to their performance. In Ohio, districts are rated annually on a set of 27 indicators, of which 25 are student achievement tests as well as student attendance and graduation rates. Based upon these ratings, districts are put into four categories: effective, continuous improvement, academic watch, and academic emergency. These categories are highly correlated with the socio- economic status of districts. Districts in academic emergency have five years to move out of the category or are threatened with state takeover. CPS is in the academic emergency category, but despite one of the highest levels of poverty of any district in the state, it is not the lowest performing district.

The district's accountability system is called the School Accountability Plan. In it, targets are set for each school in six areas, which are very similar to the state indicator areas. Unlike the state system, targets differ by school, which are set based upon the results of the previous year. Targets are set so that if all schools meet their targets, than the district will meet its target. Based on their performance, schools are rated as either a school incentive award winner, an achieving school, an improving school, a school in intervention, or a school under redesign. Redesigned schools can, and have been, reconstituted. Principals' pay raises depend partially on the performance of their school.

The theory of how teaming works

In interviews conducted in the fall and early winter of 1997 with 14 leaders of the Cincinnati education community, the leaders described how they expected teaming to work. The district leaders emphasized improving student achievement and the quality of the educational experience as the overall expectation of team-based schooling. Leaders hypothesized that team-based schooling would impact the district in a variety of ways. The influences that were mentioned can be loosely organized around four inter-related themes: decentralized control, more focused curriculum and instruction, a more student-focused school culture, and increased accountability.

District leaders described how they expected teaming to shift decision-making about curriculum and instruction from the district to schools to teams of teachers, giving school staff a greater role in critical decision-making about their work and greater control of their budgets. They saw this devolution of authority driving related changes in the central office while giving schools greater autonomy from the central office.

Many leaders therefore stressed that team-based schooling would increase teachers' focus on curricular and instructional issues. They felt that attention to the curriculum standards would increase, improving curricular planning and alignment. They expected that teachers would make more fine-grained decisions about grouping of students, resulting in more individualized instruction. They also expected that looping (teachers staying with the same group of students over multiple years) would push teachers to expand their curriculum knowledge. In these ways decentralization, along with increased accountability, would lead schools and teams to allocate their resources more productively.

Leaders also envisioned a series of influences that can loosely be called a more student-focused school culture. Under this element of their vision, a series of new relationships and norms would develop in team-based schools. Teachers would get to know students better, would analyze student achievement data and would be better informed as they designed instruction to more effectively meet students' needs. One leader stressed that the teams would form communities, providing a greater reflection of the democracy we live within.

The local leaders also felt that team-based schooling would increase the accountability of teachers. They described how the new teams would give teachers a greater sense of students' accomplishments and encourage them to take more responsibility for the progress and success of individual students. Since each of the teams would be responsible for preparing students for one of the gateway grades at which promotion benchmarks must be met, all teachers would share the responsibility that had previously rested more heavily on those teachers assigned to the gateway grades. Further, it was envisioned that a culture of competition would emerge in the effective team-based schools, propelling teachers to higher quality instructional levels. Teaming therefore has the potential to meet the demands of increased autonomy and accountability at the school level through decentralization, rather than through increased centralization as has been a feature of earlier reforms.

Reforms are seldom implemented in isolation and other initiatives and events often have unintended effects. The implementation of team-based schooling in Cincinnati was no exception. Three events occurred in Cincinnati which both directly altered the implementation of *Students First*, and more subtly influenced the environment within which the reform was unfolding. First, one of the major architects of *Students First*, J. Michael Brandt, retired as Superintendent after the first year of team-based schooling and was replaced by Dr. Steven Adamowski, although the Board restated its commitment to *Students First*. Second, the district experienced severe budget cuts and schools were forced to reduce staff and resources. Third, in the 1999-2000 school year, the district and union went through a prolonged contract renegotiation. Additionally, during the time of the initiative, the district announced major organizational changes, including a reorganization to K-8 schools, a plan to shift to open enrollment for high schools, the adoption of a new facilities plan which targeted which targeted some schools for eventual closure, the expansion of charter schools. This confluence of events and developments generated considerable anxiety and undermined morale among teachers. The overall climate of rapid change and uncertainty disturbed some teachers' confidence in the stability of their teams and in the future of the team-based reform.

IV. Expanding the autonomy of teachers in schools

As we have discussed, the team-based schooling reform envisages that schools, teams and individual teachers will have greater control over how they teach while also being held increasingly accountable for the achievement of their students. This notion of increased autonomy raises a series of important issues that concern the definition and limits of autonomy and the authority that resides at different levels within schools - including teachers, team leaders, and the principal. These issues also played out between schools and the district. That is, the increased autonomy of teaming created a whole new set of relationships within schools that implicitly modified the existing traditional hierarchy.

The traditional hierarchy of schools has a principal (and vice-principal in larger schools) sitting on top of a traditionally flat organizational structure. Schools often have a large number of committees to make instructional decisions, but formal authority is vested in the principal. Team-based schooling changed the arrangement such that teams of teachers are formally made responsible for instructional decisions about their students. Teams are led by team leaders while the school is led by the Instructional Leadership Team (ILT), comprised of team leaders and led by the principal. The ILT is officially responsible for making school-wide instructionally related decisions. This new, more multi-faceted organizational structure created uncertainty as the members sought to clarify the extent and limits of their autonomy and authority. In the course of our fieldwork these concerns were at the forefront for school faculty as they struggled to implement team-based schooling. In this next section, we explore in some detail the issues around autonomy and authority that arose in schools as their faculty implemented the reform.

The role of the team leader

The key purpose of teams is to establish a structure that provides teachers with increased opportunities to work together to improve instruction. The collective bargaining agreement between the teacher union and the district states that each team shall have a paid team leader and describes the procedures for their selection. However, there is little specification about the team leader's role or the authority they have to make decisions that affect the members of their team. In some teams, members naturally deferred to their team leader to organize the time and resources of the group while in others this process was collaborative. There were a small number of teams in which the team leader's efforts to exercise authority created friction amongst the team members.

In our interviews with a sample of members of 41 teams in the second year of teaming (1998-99), a number of team members and leaders discussed the problems caused by the unclear responsibilities of team leaders. For example, in a team in a K-8 school, some team members did not accept the team leader's authority, especially the teachers who knew they would not be returning to the school the following year. Two of the four teachers had requested and received a transfer to another school and a third did not have his contract renewed. As a result, the team leader said the team was dysfunctional. "The only part where there is really teaming academically is with [the special education teacher]. We share responsibility for his developmentally handicapped kids and my grade 7 to 8 kids. That works great, but it isn't any different from what I was doing before teaming."

In another elementary school, there was a serious conflict between the team leader and one of the team members. The team leader said the conflict was caused by a personality issue, but the teacher said it was due to their different teaching styles. The teacher did not want to follow the team leader's advice on instruction and she said, "The team leader always wants things her way." The team leader commented, "Lots of teachers have different visions but teams need to have a united vision. We don't talk about a philosophy or teaching styles as a team." These examples raise important questions about team leaders' capacity and authority to propel their teams to higher functioning levels.

This lack of definition of the team leader's authority was of concern because in some cases it prevented teams from engaging in instructional change, a central aim of team-based schooling. An elementary school team leader described how the team members found it hard to share student work samples and resisted doing this even though they agreed, in theory, that it was an important practice. One team leader had asked to observe another teacher's class, but it did not happen. "I could have insisted on certain things, like sharing examples of students' work, but I don't see that as my role. I don't feel I have the right to challenge teachers about their practice. My role is to set a tone, an expectation of being professional."

Thus, in theory, while the teams were given autonomy to make decisions about instruction, in practice, the decision-making process required someone with institutional authority to facilitate the process. This lack of definition of autonomy and authority was also evident within the Instructional Leadership Teams (ILT).

The role of the ILT and the principal

The role of the ILT in each team-based school is to develop, review and evaluate the instructional program and to monitor and improve school operations and procedures that impact on instruction. The ILT is also to develop and monitor the school budget and to oversee the formation of teams and can decide on the process by which it makes decisions, for example by vote or consensus, and faculty will also be required to approve the ILT recommendations by majority vote. The ILT therefore, as its nomenclature implies, is to provide a forum for decisions to be made about instruction and those decisions are then to be disseminated and implemented at the team-level. Our observations of ILT meetings and interviews with ILT members and principals in the second year of teaming highlighted the difficulties in implementing a devolved leadership structure.

The design structure of the ILT represents a significant shift in the way decision-making power is distributed within a school. Authority for the overall direction of the school traditionally resided with the principal but the team-based model is intended to shift authority for making some decisions down to the team level. The introduction of the more democratic decision-making through the ILT represents a major change from more hierarchical school power structures.

Although the ILT is intended to be run in a consensual way so all members are able to make an equal contribution to the decision-making process, the reality is that the differential power relations among the various members can undermine the decision making process. We found that the principal (or someone else on the ILT) had to actively push for shared decision-making because the traditional hierarchical culture of schooling predisposes teachers to defer to the principal.

For some principals, moving toward more consensual decision-making processes was a difficult transition to make. The principal, in theory, is an equal member of the ILT with no more authority than anyone else, but the principal's role in monitoring and evaluating staff performance may make teachers reluctant to challenge the principal on an issue. Principals can exercise their power advantage or may suppress differing views from being expressed during ILT discussions. Some principals were described as effective at encouraging consensual processed while others were described as being adept at ensuring their ideas were prioritized and implemented.

Principals promoted their own agendas in direct ways, including actually setting the agenda and facilitating the ILT meetings, and in indirect ways, which some faculty members described as manipulation behind the scenes. In our interviews in the second year of teaming, one

ILT member stated, "The principal stonewalls and dominates the conversation." Furthermore, while most principals paid lip service to the notion of consensual decision-making, there were some whose leadership styles were in direct and stated opposition to this. One principal rarely attended the ILT meetings and made some decisions without consulting the ILT at all. As a result, several ILT members said they would be stepping down as team leaders because they no longer wanted to be part of the ILT. In several schools, principals made decisions that undercut ILT consensus.

Faculty and administrators in the team-based schools were adopting a range of relationships as they sought to navigate the transition from a traditional hierarchical culture to the more democratic culture reflected in teaming. School leaders at one end of the spectrum were remaining traditional. As one team leader described, "A TBS [team-based school] principal needs to understand, explain, share. They need to be willing to let go. [Our principal] doesn't share with us what we need to know and it leads to frustration." At the other end of the spectrum, a principal at another school was adopting democratic decision-making to the extent that he was not willing to make any decisions himself. A team leader in the school commented, "The principal is delegating everything and not being a leader." Most principals were seeking a middle ground. As one principal described, "I try to empower people but they have to understand that this is a hierarchy and I am the principal."

Ideally, the ILT is designed to ensure that decision-making authority does not reside solely with the principal. However, given the complex power relations that operate within schools and the control that the principal has over the retention and promotion of staff, the reality is that most principals still maintain a high degree of control. Some teachers seemed pleased to have a principal they perceived as a "strong" leader who could maintain control of the school. Other teachers questioned whose responsibility it was to ensure that principals in team- based schools operated in ways consistent with the team-based philosophy.

Role of the team vis-à-vis the ILT

While there were issues of authority within the ILT and between the ILT and the principal, there were also issues of authority raised in relation to the decisions being made by the ILTs concerning the division of authority between the ILT and the teams. When interviewed during the second year of teaming, some teachers said they were confused about the role of the team compared to the role of the ILT. In several cases, team leaders felt that the ILT was overriding decisions that had been made by teams, decisions that they felt the teams should have been able to make. This was exemplified by an elementary school where there were a range of opinions about the benefits of multi-age classes and looping (the practice of students remaining with a teacher for more than one year). A team leader in the school commented, "We are still trying to work out the mechanics as far as what teams can or cannot do. This year, the ILT decided either looping or multi-age—one or the other. The majority of the school doesn't want to do either one." This example raises the question of whether there should be some limitations on what teams can decide and what the ILT has the authority to decide.

Differences of opinion about the levels of autonomy and authority within a school need to be discussed and resolved if team-based schools are to function effectively. A team leader in another school commented, "There are some rumbles that the ILT is trying to run everything but teams should be represented by team leaders so this shouldn't be the case." An ILT member in the same school commented, "The ILT makes decisions about programs, budget items, etc. Teams can make decisions within their teams. Yet for discipline, the encouraged school wide policy is what is best for children."

The role of the district in relation to the school

The lack of clarity within team-based schools about the limits of their authority and autonomy was also reflected at the district level. It was apparent from our interviews with leaders in the Cincinnati education community in 1998-99 that the district had not yet worked out what decisions the school should have the authority to make, and which decisions were the purview of the district. For example, there were a number of examples of the district encouraging schools to make their own decisions about school reform models or curriculum resources and then telling the school that their decision was not acceptable.

We also noted some differences emerging in district leaders' views about how much autonomy should be given to schools. While they generally agreed at a conceptual level that schools and teachers should be given increased autonomy to make decisions aimed at improving student achievement and should be held more accountable for the results obtained, there were important differences of opinion about what this meant in practice. Our interviews suggest that the views of district policymakers on this issue fall along a continuum. At one end of the continuum are those who believe that schools should be given as much autonomy as possible to decide what and how students should be taught, and which reform models to use. In this view, autonomy should be constrained only by the standards (promotion standards and proficiency tests) that are mandated by the state and the district. How school staffs reach these standards is up to them. One leader in the district summed up this position, "Let the standards shape what schools do, but let them find their own way." Furthermore, some of these proponents of increased school autonomy would like to see schools freed from some of the current contract requirements, such as those that limit meeting times and require vacancies to be filled from the surplus pool instead of allowing schools to recruit their own staff.

At the other end of the continuum are those who favor granting less autonomy to schools and teachers. For example, they believe that schools should choose only those whole school reform models previously approved by the district and that teachers should not be allowed to adopt curricular materials that have been tried and failed in several other places in the district. Those in favour of constraining autonomy at the school level believe that setting academic standards for schools is not sufficient, and contend that schools should teach a district-approved curriculum and that students in all schools should follow a core academic program.

These differing views of autonomy are associated with different views of team-based schooling. Those favoring maximum autonomy are content to permit more variation in how ILTs function, how teams are structured, and how resources are allocated by the schools. Those who favor some constraints believe that the district should ensure that team-based schooling is correctly implemented and that the structures are faithful to the original design. In practice, this has raised a number of questions of how the district should respond to issues. For example, a middle school team of a dozen teachers who want to stay together as a team, regardless of the suggested team size of 3-5 teachers; or a principal who ignores the unanimous recommendations of the school's ILT.

As teachers and school administrators sought to define the limits of their authority, they were doing so in the context of a high-stakes accountability framework at both the state and district level. In the next section we discuss the issues that arose in response to increased accountability in the context of team-based schooling.

V. Increasing accountability

As previously described, the district's reform initiative, *Students First*, contains a school accountability plan in which targets are set for each school based upon indicators of progress, primarily achievement scores in the five core subjects, as well as student attendance, dropout rates, and graduation rates. Progress is defined differently for each school, depending on its previous year performance on these indicators. Rewards and sanctions are meted out based upon school performance each year. Thus the "teeth" of the accountability system are at the school, rather than the team-level. But this does not mean that teams do not feel the bite of accountability.

The pressures of internal accountability

Abelmann and Elmore (1998) make the distinction between systems of accountability that are external and internal to schools. In their conceptualization, state and district accountability systems are external. But internal accountability systems operate in equally powerful ways and are made up of individual responsibility and collective expectations that together shape they ways that people account for their actions. They found that, "strong expectations can influence and shape what a teacher…feels responsible for in his or her work " (p. 17). Similarly, our survey research found that teachers in team-based schools had significantly higher levels of collective responsibility and reported higher levels of involvement in school-related decision-making (Supovitz & Watson, 1999).

Survey data from the second year with all faculty in team-based schools revealed that teachers were overwhelmingly positive about working together on teams. Over 90 percent of team members reported that they worked well together as a team to do what was "best for kids." A similar percent felt comfortable voicing concerns with team members. In interviews, several teachers described how they valued the relationships they were able to develop with other team members. A team member in an elementary school explained, "I like the concept of team-based. You are working with the same group of kids. I like the communication and feedback you get." In a middle school, a team member commented that teams enabled improved communication that helped them to better address the needs of students. "We have more adult communication via teaming. The team spends a lot of time brainstorming on how to mix and match kids."

Teaming also tended to increase the pressure that teachers put on each other. In some cases this was a constructive force, but in others it served to undermine working relationships between teachers. This resulted in higher levels of stress and increased tensions between teachers in team-based schools. Survey results from the first two years of CPRE's evaluation indicated that trust levels between teachers were significantly lower in team-based schools in comparison to non-team-based schools, and that trust levels declined from the year before schools implemented teaming to the end of their first full year in the initiative (Supovitz & Watson, 1999). These results suggest that the introduction of the formal mechanisms of teaming had surfaced issues which were avoidable when teachers did not have to work so closely together. As one team leader commented in the second year of teaming, "There is a cultural shift going on in the school. Teams are more vocal than before and people that used to be passive are more assertive."

Another consequence of increased interactions between teachers around instructional issues was higher levels of conflict. For teachers who may be used to working with other teachers on discipline or curriculum committees, but who are none-the-less used to closing their classroom doors for instruction, teaming can increase opportunities for disagreement. On our survey in the second year of teaming, over half (53%) of the team members reported conflict between members of their team. Personality clashes were the greatest sources of conflict, accounting for 67 percent of the conflicts. Disagreements over the equitable distribution of work, student discipline procedures, educational philosophy, and disagreement over curriculum and assessment issues were also common.

Of course, conflict in itself is not necessarily negative because it may be the product of increased communication among teachers and more engagement in critical discussion of practice and philosophy. Our interviews with team members suggested that conflict was a problem only when it remained unresolved and, therefore, undermined the relationships within teams. Our survey also included a series of questions for the team members who reported having conflict in their teams about how they attempted to resolve it. Over half (57%) of the teams reported that they resolved the conflict amongst themselves but, of the 53 percent of team members who said they experienced conflict, 30 percent said that the conflict remained unresolved. Overall, this means that approximately 15 percent of the teachers were experiencing unresolved conflict on their teams, a percentage that corresponded closely to our interview data.

While team relationships are something that, with the appropriate support and skills, can be improved and strengthened, there are other factors that affect the operation of teams and student achievement which teams have little or no control over. In the course of our research, teacher and student turnover emerged as significant factors affecting teams.

External accountability

In general, there was a certain amount of resistance from teachers to being held accountable for the performance of their students. In our 1998-99 survey of school faculties, over 50 percent of the teachers in the team-based schools did not believe it was fair to hold teams accountable for the achievement of their students. Our fieldwork helped us to understand some of the reasons why teachers felt uncomfortable with this responsibility.

One reason that teachers resisted accountability was high rates of both student and teacher mobility. The design of team-based schooling states that teams will be composed of groups of teachers who will be held jointly accountable for the achievement of a group of students for at least two years. This model assumes that the composition of the teams, in terms of students and teachers, will remain stable to ensure maximum benefits from collaboration and longer-term relationships with students. But teachers were quick to point out the high mobility of their student populations and that high student mobility rates made it unreasonable for them to be held accountable for student achievement. How could they be held responsible when many of their students were with them for relatively little time?

Second, teachers felt that teacher mobility impeded their ability to work together to meet the needs of students. Our survey with faculty in team- based schools in the second year asked teachers if the membership of their team had remained the same over the school year. Less than one-third of teams reported stability (in terms of their teacher composition) from the first to the second year as team-based schools. Of the teams that did change, about one-third changed significantly and two-thirds experienced minor changes. The reasons for the turnover among team members varied. In some cases they were due to decisions made by team members to leave the teaching field, take long-term leaves, or transfer to other schools or positions. But in many cases, team instability was due to decisions made at the district and school level that affected the school's staffing and resulted in changes to team composition.

We also found that while most teachers felt their autonomy has increased, at the same time, teachers also reported that they experienced significant restraints on their autonomy caused by the introduction of standards-based accountability. Our work suggests that the requirements of standards-based accountability, which brought with it performance standards, pacing guides, curriculum materials and "standards into practice" protocols for those schools that failed to meet their targets may counteract efforts to increase local autonomy.

How were teachers using their increased autonomy and accountability?

The litmus test for the effectiveness of the team-based schooling reform is whether increased autonomy and greater accountability have resulted in the kinds of instructional improvement that leads to increased student achievement. The results of our evaluation show that when teams are structured in ways envisaged by the reform, and when they are engaging in practices that teaming was designed to enable such as planning lessons together, reviewing student work together, co-teaching classes and observing each other teach, then there is a positive impact on student achievement (see Supovitz & Watson 2000 and Supovitz & Watson 1999 for more detailed discussion of the methodology used). However, we also found that implementation varied and there were very few teams that were using the kinds of practices that were positively associated with student achievement. Even when teams were functioning well in terms of team meetings and team relationships, very few teams had begun to engage in instructional improvement by changing the way they were teaching. While our research has shown that there were a number of factors such as resource constraints, lack of definition of authority, and student and teacher mobility that undermined the effectiveness of team-based schooling, the small number of teams that were responding to increased autonomy and greater accountability by attending to instructional improvement is a significant concern.

VI. Discussion

The purpose of this article has been to explore the "lived reality" of team-based schooling--a standards-based reform that aims to increase autonomy and accountability at the school-level. Increased autonomy is to be provided by giving schools and teams of teachers increased control over how they teach and over other factors that influence student achievement such as scheduling, curriculum and grouping of students. Increased external accountability is enacted in the form of state and district level performance targets. Internal accountability is enacted in the form of increased peer accountability within teams. This design assumes that holding schools and teams more accountable for student achievement, while at the same time giving them more autonomy, will enable them to promote student achievement. Our research enables us to make the following observations.

First, implementing any reform requires the recognition that it is enacted into an existing culture. In this case, team-based schooling did not replace the existing culture and relations of power within schools. Rather, faculty both accommodated and resisted various aspects of the reform so that the "new reality" in schools became a hybrid of both of these at times contradictory schooling structures. Although unarticulated, the success of the teaming design is predicated on a significant shift in relations at every level of schooling and this kind of shift, by necessity, will involve a change in the traditional relations of power by which the daily life of the school is structured. If not made explicit and attended to, these forces have the potential to subvert the kinds of changes on which teaming depends.

Second, the lack of definition and clarity in the reform design about the limits of authority and autonomy that operate at various levels—from the district through to individual teachers—hinders the ability of teachers, teams and schools to exercise the increased autonomy that team-based schooling was intended to provide them with. As our research has shown, this lack of clarity has sometimes resulted in conflict and/or in an inability to focus on the challenging work of instructional improvement. We recognize, however, that the reform process is a "work in progress" and through our research and through its own mechanisms, the district has been closely monitoring the reform and attempting to provide the kinds of guidance and resources that teachers are saying they need.

Third, internal accountability is a powerful force. The pressures of collective responsibility unleashed by placing the responsibility for student achievement on teachers works in both constructive and destructive ways. On the one hand, teachers are forced out of isolation and are held increasingly accountable by their peers for their role in contributing to instructional improvement. On the other hand, as Cohen (1976) and Hargreaves (1980) have pointed out, expanding local responsibility is often accompanied by increased conflict. Our research indicates that conflict can have both productive outcomes, for example when it forces teachers to confront issues that impede instructional coherence, and unproductive outcomes, when conflict is left unresolved and corrodes interaction and trust.

Fourth, while external accountability mechanisms are premised on the assumption that teachers, teams and schools can be held directly accountable for student achievement, in reality there are a large number of factors over which they have very little control but which impact negatively on student achievement. These include such factors as student and teacher turnover caused by decisions made at the district-level in response to resource constraints and school restructuring. As Elmore (2000) argues, if policy makers and administrators are going to hold teachers accountable for certain outcomes, then they need to ensure that teachers have the capacity and resources to achieve those outcomes. Furthermore, while the design of team-based schooling promotes greater school and team-level autonomy, external accountability mechanisms constrain autonomy in very real ways.

Thus far we have focused on highlighting the practical and relational issues that have arisen as teaming was implemented. But in the final part of this article we want to broaden the discussion to consider the trade-off between increased accountability and increased autonomy on which standards-based reforms such as team-based schooling are based. The assumption behind this trade-off are that teachers, teams and schools will respond to greater accountability by using their increased autonomy to engage in instructional improvement. Our research has highlighted some of the very real constraints that serve to limit autonomy and that also raise concerns about the extent to which teachers can be held directly accountable for student achievement in the way that standards-based reforms are designed to do. We have shown how these constraints hinder the ability of teachers and teams to engage in the challenging work of instructional reform. However, the question we want to raise here is whether—resource constraints and design problems aside—increasing the autonomy of teachers within the context of an external accountability system is the way to improve instruction. Or, to put it another way, do we have evidence that teachers were using their increased autonomy to engage in instructional improvement in order to meet the demands of the external accountability system? Our research shows that most teachers and teams were not. For the majority of teams, teaming is a structural, rather an instructional reform. That is, teaming can facilitate improved communication between teachers and allow them greater decision-making power over certain areas, but most teams do not use their increased autonomy and greater accountability to engage in instructional reform.

Our research suggests that modifications need to be made to the ways in which autonomy and accountability are used within the context of standards- based reforms. Thus, the question is not so much whether teachers should be given more or less autonomy, or should be held more or less accountable. A more important question is how might autonomy and accountability be used to create incentives for teachers to engage in instructional improvement? One of the ways that this might occur is by modifying the accountability system. At the present time, schools and teams are primarily held accountable for the achievement of their students on standardized tests. However, as we have shown, there are some very real concerns about the fairness of holding teams and schools accountable on such a limited measure of school effectiveness. An alternative would be to hold schools, teams and teachers accountable for their instructional practice so that they are rewarded for those aspects of their work over which they have direct control. In this way, the accountability system would encourage teachers and teams to focus on instructional improvement.

A second way that teachers might be encouraged to engage in instructional improvement is by constraining teachers' autonomy in strategic ways. As we cited in the introduction, Hannaway (1993) pointed out that teachers in successful decentralized districts actually have less autonomy than teachers in traditionally organized schools. That is, while decentralization is typically seen as a means of increasing teacher autonomy, in fact, it constrains teacher autonomy by exposing teachers' practice to increased surveillance by their peers and by the district through the increased accountability measures. Our research shows that this is the case in team-based schools, but that increased surveillance leads to instructional improvement in very few teams. The challenge is to use increased autonomy and surveillance productively—in ways that result in instructional improvement. This is an important observation because while standards-based reforms are designed to trade-off increased autonomy with greater accountability, our research suggests that increasing autonomy and accountability *per se* may not result in instructional improvement. Instead, it may be more constructive to design reforms that constrain autonomy and accountability in ways that require and enable teachers to engage in instructional improvement.

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Similarity of Mathematics and Science Achievement of Various Nations

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Abstract

In 1991-97, the International Association for the Evaluation of Educational Achievement (IEA) undertook a Third International Mathematics and Science Study (TIMSS) in which data about the mathematics and science achievement of the thirteen year-old students in more than 40 countries were collected. These data provided the opportunity to search for patterns of students' answers to the test items: which group of items was relatively more difficult (or more easy) for the students from a particular country (or group of countries). Using this massive data set an attempt was made to measure the similarities among country profiles of how students responded to the

test items.

Introduction

In the educational community, folklore has it that "The German education system is quite similar to that of Austria," or "All post-communist countries teach mathematics in the same way," and the like. Sometimes these statements are based on an analysis and comparison of national school structures, the curricula or textbooks. Is it really possible to measure the similarity between the countries? Usually, the phenomena of the similarity of the national educational systems is descriptive and subjective; their features are seldom measured and placed on a scale. Data from the Third International Mathematics and Science Study (TIMSS) provided the opportunity to search for patterns among nations in students' answers to the test items. (Notes 3 and 4)

An attempt to group the TIMSS participating countries had already been undertaken by analyzing national curricula in mathematics and science (Notes 1 and 2). The countries were grouped by *a priori* geographic and economic conditions, or by investigating statistically some patterns in the national math and science curricula. This last mentioned method of looking for statistical similarities is close to the method described in this article. The difference is in the nature of the data used: the curriculum analyses dealt with the intended curriculum whereas the emphasis in this article is on the achieved curriculum, i.e., what was actually learned by the students in the countries.

Conceptual Framework

Figure 1 presents the difficulty levels (p-values) of 20 items forming a part of the TIMSS mathematics test for three countries X, Y, and Z. These items have been ordered by their difficulty; that is, the actual percentage of students obtaining the right answer for each item.

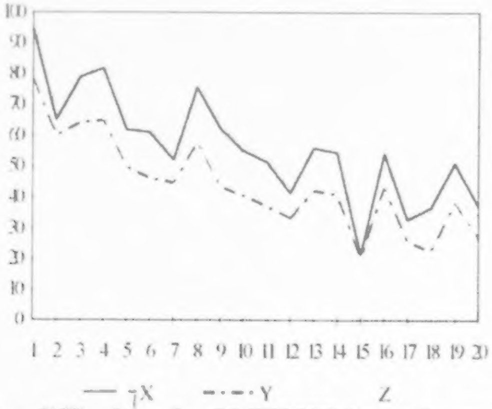

Figure 1. Item difficulties for 20 TIMSS items for countries X, Y and Z.

It can be seen that the students in countries X and Y performed this part of the test relatively similarly, despite the fact that country X had higher overall achievement than country Y. The students in these two countries performed in a similar way on the same items relative to other items. Country Z students performed in quite a different way: the overall students scores on this set of items were about the same as in Country X, but the relative national item difficulties for these two countries were quite different. This fact becomes more evident if the items are re-ordered (see Figure 2) according their difficulty for country X (forming "a river" for these two countries).

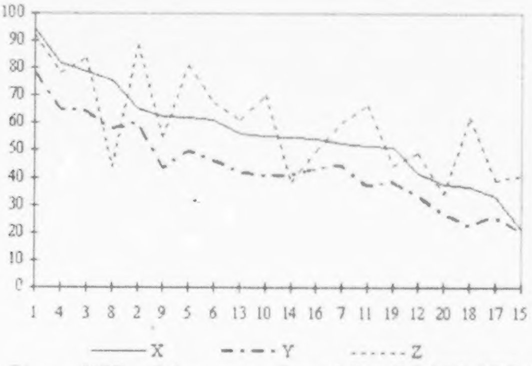

Figure 2. Item difficulties re-ordered for 20 TIMSS items for countries X, Y and Z.

What is the meaning behind such a definition of similarity? The simplest explanation is that two countries were similar if the students in these countries performed on the TIMSS math test in a similar way, i.e., the same set of items were relatively more difficult or more easy.

The value of such comparisons of the countries lies in the identification of pairs or groups of similar countries. Some of these pairs and groups are well-known while some of them have remained somewhat hidden. If there is similarity between two countries, the question of the cause of such a phenomenon naturally arises; perhaps the similarity is the result of a more general relationship between countries based on common historical or linguistic similarities, or it may be the result of the impact of educational reforms undertaken, or it may be just a random occurrence. A brief look at the groups of similar countries and an examination of the matching pairs does not support the random character of such groupings. Therefore, the naming of similar countries, on the one hand, and countries performing in the quite different ways, on the other hand, is a contribution not only to general knowledge, but can also lead to the objective comparison of the curricula of the particular countries, and provide new opportunities for educational systems to learn from each other.

Method

The TIMSS mathematics test contained a total of 157 items. The initial information consisted of the difficulty levels (p-values) of every item in every country, i.e., the percentage of the correct answers for every item in every country. The range of values for each item was from 0 to 100 (percent) and could be treated as the *countries profile* in mathematics achievement (measured 157 times, forming a 157-component vector). The simple correlation of these values could be calculated between all pairs of countries. However, this would not produce the desired result. The overall international item difficulty would still play a primary role in producing correlation among countries (instead of indicating some specific trends), and the correlations between the countries would be high: all countries performed better on easy items than on difficult ones. Therefore, the effect of the item difficulty should be removed. This can be done in two ways. The first would involve a simple ranking of the participating countries from 1 to 41 according to their results on each item, and the vector of such *ranks* could be defined as a country's profile. This procedure would increase the distinguishing feature of the variable (the distance between two country's results on the item would be at least one), would take into account the results of all TIMSS countries at the same time (the "room" for the top 10 is fixed: if one country enters the top 10, another must exit), and would not be linked to the overall difficulties of the items. These ranks are usually easy to explain, but this artificial numbering (the minimal difference "1" in ranking might correspond to either a very small difference in math achievement results or a very large one) would result in a loss of information. Therefore, another method was used: the difficulty levels (national p-values) for the item were standardised within countries and converted into **z-scores**. This allowed the TIMSS countries to be ranked not by the natural numbers 1, 2, 3 etc., but by putting them on a continuous interval scale defined by the countries achievement on the item. This procedure removes the effect of the item difficulty. In order to avoid the effect of the overall countries achievement on the test, the Pearson correlation coefficient for these standardized difficulties of the items was calculated to measure the similarity between the countries.

After an examination of the matrix of Pearson correlation coefficients of the countries math profiles (i.e., the standardized items p-values for countries), a hierarchical cluster analysis was undertaken. The average linkage within groups method was used. This procedure was used to identify groups of countries having similar relationships in the achievement profiles. The reliability of this grouping was based on the internal consistency of the group measured by Cronbach's alpha coefficient. A cut-off point of 0.75 (of the coefficient alpha) was taken for forming a group of countries. The resultant group of countries was named and factor analysis was used later in order to extract the factors which were the specific profile factors of the group. This two- step procedure with the grouping of similar countries first and the factor analysis second was selected instead of the straightforward use of factor analysis. This was done because the direct factor analysis would have taken into account the effect of a main factor in both directions, positive and negative. This would have led to the grouping of countries with strong opposite trends, and would result in it being quite difficult to measure the similarity later. The final analysis of the data consisted of an analysis of the similarities between the countries and between the groups of the countries.

One indicator of the reliability of the method could be the comparison of the trends of the same country calculated for two different grades. The TIMSS study collected data about the students' achievement in two adjacent grades called "lower" and "upper" (and for most countries these were grades 7 and 8). The same procedure for the standardization of the mathematics item difficulties was undertaken for both data sets separately and the Pearson correlation coefficients were calculated for every TIMSS country pairing for both grades within a country. This analysis revealed a very high similarity of profiles for these two grades within countries. For mathematics, the coefficients were mostly above 0.80. The highest similarities were found for Singapore (Pearson correlation coefficient, 0.95), Philippines (0.93), the

USA (0.91), Australia (0.92), Korea (0.92), Scotland (0.92), and the lowest ones for Bulgaria (0.65), Austria (0.75), Greece (0.76), Spain (0.78). For science, these correlations were, for the most part, even higher. These results provide evidence of the high stability of country trends and, at the same time, could also be regarded as evidence for the stability of the method.

Mathematics

Analysis of the groups

Among all 41 countries having taken the TIMSS mathematics test for the upper grade, the highest similarity of the mathematics achievement profiles was found for England and Scotland. The Pearson correlation coefficient for this pair was 0.90. Quite close to these two countries were New Zealand (correlation with Scotland 0.86, with England 0.85), and Australia (correlations with every of these three countries above 0.70). Therefore, these countries could be taken to form the core of the first group called *English-speaking countries*. Using this language designation, Canada, the USA, and Ireland could also be included in this group. The USA correlated most highly with Canada but these two North American countries also had much in common with the European-Australian group. The place of Ireland was questionable: it was more highly correlated with Canada and Scotland. The reliability analysis had about the same alpha whether Ireland was included or removed from the group. Therefore, all seven English-speaking countries were left in the group. An analysis of the matrix of correlations presented below showed that Ireland looked like a bridge between the European-Australian group and the American one. Ireland was more correlated with Canada than with neighboring England. The reliability coefficient of 0.87 was quite high and showed some homogeneity of the group, despite the fact that the USA was a little to the side.

Table 1
Correlations of Nations on TIMSS Mathematics Items
English-Speaking Group

Australia	AUS	***					alpha	0.87
Canada	CAN	0.44	***					
England	ENG	0.76	0.34	***				
Ireland	IRE	0.37	0.39	0.26	***			
N.Zealand	NZL	0.79	0.43	0.85	0.32	***		
Scotland	SCO	0.73	0.34	0.90	0.35	0.86	***	
USA	USA	0.30	0.65	0.22	0.35	0.31	0.25	***
		AUS	CAN	ENG	IRE	NZL	SCO	USA

Factor Analysis of Nations Correlations

	communality	fac 1	fac 2
AUS	0.78	0.83	0.30
CAN	0.76	0.23	0.84
ENG	0.91	0.94	0.13
IRE	0.43	0.24	0.61
NZL	0.89	0.91	0.26
SCO	0.89	0.93	0.18
USA	0.76	0.07	0.87
		f_UK	f_Am

There were no further TIMSS countries the inclusion of which increased the homogeneity of this group as measured by Cronbach's alpha. The factor analysis for these seven countries resulted in two factors with eigenvalues of 4.06 and 1.35, together explaining about 77.4 percent of the variation. After rotating these factors (the varimax method was used), and examining the loadings, it was easy to find the "right" names for them: the first could be called *English-speaking countries -United Kingdom* (f_UK), the second – *English-speaking countries--America* (f_Am).

Table 2
Correlations of Nations--Post-Communist Group

Bulgaria	BGR	***								
Czech R.	CZE	0.07	***							
Hungary	HUN	0.13	0.35	***						
Latvia	LVA	0.16	0.23	0.13	***					
Lithuania	LTU	0.24	0.45	0.19	0.59	***				
Romania	ROM	0.41	0.19	0.05	0.31	0.25	***			
Russia	RUS	0.28	0.33	0.20	0.53	0.60	0.52	***		
Slovakia	SVK	0.13	0.67	0.39	0.36	0.49	0.36	0.45	***	
Slovenia	SLV	0.09	0.29	0.17	0.32	0.34	0.27	0.36	0.44	***
		BGR	CZE	HUN	LVA	LTU	ROM	RUS	SVK	SLV

alpha	0.81

The second set of candidates to form a group emerged clearly: all post- communist countries —Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Romania, Russian Federation, Slovak Republic and Slovenia (Central and Eastern Europe CEE countries)—had quite similar patterns in their math achievement profiles. An analysis of the correlation matrix showed about the same picture as for the English-speaking countries in that the place for Hungary was similar to Ireland.

Table 3
Factor Analysis of Post-Communist Group

	communality	fac 1	fac 2
BGR	0.44	-0.11	0.65
CZE	0.68	0.82	0.09
HUN	0.41	0.64	-0.07
LVA	0.49	0.34	0.62
LTU	0.59	0.54	0.55
ROM	0.59	0.07	0.77
RUS	0.68	0.38	0.74
SVK	0.74	0.81	0.29
SLV	0.35	0.49	0.33
		f_CE	f_EE

The decision to include Hungary in this group was based on the same consideration as for Ireland: it had no effect on Cronbach's alpha; and, it made sense from a geographical point of view and also allowed the extraction of two factors later.

The factor analysis for this group of these nine countries yielded two eigenvalues above one: 3.67 and 1.30, explaining 55.2 percent of the total variance. The analysis of the loadings of the factors was not so simple as in the previous case: the impacts from the countries were somewhat mixed. The first factor was more linked to the Czech Republic, Hungary, and the Slovak Republic, and the second to Bulgaria, Romania, and the Russian Federation. Countries such as Lithuania, Latvia and Slovenia were somewhere in between. Therefore, the names *Central Europe countries* (f_CE), and *Eastern Europe countries* (f_EE) were chosen for these two factors.

When examining the other TIMSS countries there were no further large groups of countries like the two above. Searching for some smaller groups one could think of a Nordic group (Denmark, Iceland, Norway, Sweden), an East Asian group (Hong Kong, Japan, Korea, Singapore), and possibly about some group from Western Europe such as Austria, Belgium, Germany, Greece, France, Spain or Portugal. Unfortunately, this last set of countries proved to be very heterogeneous: it was possible to identify only pairs of countries (like Austria--Germany, French speaking part of Belgium--France), but not more. The Nordic countries were quite homogenous (see the table of correlations below).

Table 4
Correlations of Nations--Nordic Group

Denmark	DEN	***		alpha	0.82	DEN	0.49	0.70
Iceland	ICE	0.46	***			ICE	0.67	0.82
Norway	NOR	0.47	0.55	***		NOR	0.72	0.85
Sweden	SWE	0.41	0.62	0.68	***	SWE	0.73	0.85
		DEN	ICE	NOR	SWE		communality	factor

It was possible to identify two other countries that were near to the four Nordic countries, namely the Netherlands and Switzerland. By adding them to the group there was no increase in the alpha coefficient for the group but both of them were quite highly correlated with the Nordic group as well as with the UK part from the English-speaking group. These two countries form another bridge between the Nordic and English-speaking – UK groups and hence the Netherlands and Switzerland were not included in either of these groups. The factor analysis of the Nordic group yielded one large eigenvalue of 2.6, giving one factor, and explaining about 65 percent of variation.

The Eastern Asian group, formed by Hong Kong, Japan, Korea and Singapore, was homogeneous, and each of these four countries contributed about the same amount to the Asian factor (one large eigenvalue of 2.4 explaining about 60 percent of the variation).

Table 5
Correlations and Factor Analysis of Nations--Eastern Asian Group

Hong Kong	HNK	***		alpha	0.82	HNK	0.71	0.84
Japan	JAP	0.54	***			JAP	0.63	0.79
Korea	KOR	0.37	0.48	***		KOR	0.46	0.68
Singapore	SIN	0.64	0.42	0.33	***	SIN	0.61	0.78
		HNK	JAP	KOR	SIN		communality	factor

Each of these four countries performed very well on the TIMSS test (Singapore was ranked first in overall math achievement, followed by the other three). It is interesting to note that there was one country—South Africa— with the lowest score of all countries that had a similar profile to the Asian group. The math achievement profile of South Africa was quite similar to Singapore (correlation coefficient 0.48), to Hong Kong (0.41), and Japan (0.34). The inclusion of South Africa in this group would not affect the Cronbach's alpha coefficient of the group. Considering both the geographical location of these countries and the statistical considerations, only four Asian countries were left to form this group. From another point of view, this similarity could be somewhat artificial because of the method used to measure the similarity of pairs of countries with stable trends. In other words, a country that performed extremely well on the test could have a similar profile to a country that performed extremely poorly on the test because on most items country ranks had no diversity; they were always on the top, or always on the bottom of the international list. Despite this, it can be seen that the method worked well for "average" countries. There were no TIMSS countries performing excellently or poorly on every test item, and, therefore, the method worked reasonably well to measure the similarity of the top (bottom) ranked countries taking into account the patterns of the similarity rather the overall achievement results.

The four groups above were defined according the students' achievement on more than 150 math items. These items represented different areas in mathematics: fractions, algebra, geometry, and the like. The countries traditions in mathematics education placed unequal emphasis on these subtopics in the curriculum, and as a consequence of this the students' achievements were also quite different. The similarities of profiles for sub-scales are briefly commented on below.

English-speaking countries . These countries were more similar on *Proportionality* (Cronbach's alpha coefficient is 0.91) than on *Measurement* (0.73). It should be pointed out that there was high similarity between the USA and Ireland on *Proportionality* compared with the rest of the countries of this group (USA – New Zealand 0.69, Ireland – Scotland 0.80), and the differences on *Measurement* (the pair Australia – Ireland had a negative correlation of -0.31). The most interesting figures from the other subscales were the 0.64 and 0.69 for the pair USA and England on *Geometry* and *Data representation* respectively (compared with 0.10 for *Algebra*).

CEE countries. The analysis of the subscales pointed to the exceptional place of Hungary in this group having only negative correlations with the other countries in this group on *Geometry* (up to -0.62 with Romania!). Some negative correlations were found in other subscales, such as in *Fractions* Bulgaria – Czech Republic -0.20, in *Algebra* Czech Republic – Latvia -0.16, in *Measurement* Latvia – Romania -0.25, in *Proportionality* Lithuania – Romania -0.28. Generally, the Cronbach alpha coefficients for this group ranged from 0.55 in *Geometry* (the Hungarian effect), to 0.85 in *Data representation*. In *Geometry* Hungary was most similar to the *English-speaking countries group* (correlation with England 0.63, with New Zealand 0.71, with USA 0.45).

Nordic countries. The group is quite homogenious in all subscales: there were no negative correlations. The Cronbach alpha coefficients ranged from 0.71 (*Measurement*), to 0.87 (*Proportionality*).

East Asian countries. The interesting subscale for this group was *Proportionality*, where the alpha coefficient fell to 0.38 (the correlation for the pair Singapore – Hong Kong was 0.71, and with all the rest it was about zero). In this subscale Japan was more similar to the Philippines (0.79), Korea – to Greece (0.74) or USA (0.68). This subscale was one of the shortest with 12 items only which might account for the diversity. Other subscales worked in a relatively stable manner with the alpha coefficients ranging from 0.67 (*Algebra*) to 0.86 (*Geometry*, *Measurement*).

Another noteworthy finding from the subscale analysis was unexpected and concerns the difference between *Measurement* and *Proportionality*. Both of these subscales included more application type items involving use in real-life situations. Thus, it was expected that countries would teach them in a fairly similar way, whereas larger differences would be found in topics such as *Algebra*, *Geometry* or*Data representation*.

To summarize, four groups of similar countries were identified among 41 TIMSS countries. The relationship between these four groups are presented below. Since rotation was used in the factor-analysis, at least two pairs of factors in the first two groups should be perpendicular. In order to understand the overall picture for all four groups together, an examination of the correlation matrix below should be made.

Table 6
Correlations Among the Factors

f_UK	***					
f_Am	0.00	***				
f_CE	-0.32	-0.07	***			
f_EE	-0.49	-0.44	0.00	***		
f_Nord	0.50	0.10	-0.20	-0.52	***	
f_Asia	-0.25	0.21	-0.32	0.24	-0.44	***
	f_UK	f_Am	f_CE	f_EE	f_Nord	f_Asia

The Nordic group countries were quite similar to the UK group (correlation coefficient 0.50), but not so similar to the USA and Canada group (0.10), and were opposite to the Eastern European (-0.52) and Asian groups (-0.44). Note the Asian group's relationships with UK/USA and Central/Eastern European groups. In both cases the correlation coefficients were positive with one subgroup and negative with another. Thus the behavior of the Asian group could serve as an indication that the splitting these two large groups into parts was done correctly.

Science

Analysis of the groups

Table 7
Factor Analysis for Science Items
English-Speaking Group

	communality	fac 1	fac 2
AUS	0.64	0.48	0.64
CAN	0.72	0.22	0.82
ENG	0.81	0.88	0.19
IRE	0.61	0.76	0.17
NZL	0.66	0.64	0.50
SCO	0.80	0.87	0.19
USA	0.75	0.09	0.86
		f_UK	f_Am

The same four groups of countries for mathematics were also tested for Science. Two of them were stable enough to be kept for science (English speaking countries' group – Australia, Canada, England, Ireland, New Zealand, Scotland, USA, and the Nordic group-- Denmark, Iceland, Norway, Sweden). Relationships in the other two groups were more complex and not strong enough to permit keeping the countries together, i.e., the CEE countries group (Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Romania, Russian Federation, Slovak Republic, Slovenia), and the Eastern Asian group (Hong Kong, Japan, Korea, Singapore). One reason for this could be some heterogeneity in the school subject called science: in the CEE countries groups, science is taught as separate courses (*Geography, Biology, Chemistry, Physics*). Therefore, the similarities found for one subject were not valid for another subject.

Table 8
Correlations for Science
English-Speaking Group

Australia	AUS	***					alpha	0.86
Canada	CAN	0.48	***					
England	ENG	0.53	0.38	***				
Ireland	IRE	0.34	0.31	0.62	***			
N.Zealand	NZL	0.67	0.51	0.59	0.44	***		
Scotland	SCO	0.50	0.38	0.74	0.60	0.59	***	
USA	USA	0.49	0.59	0.25	0.35	0.37	0.27	***
		AUS	CAN	ENG	IRE	NZL	SCO	USA

The link England–Scotland (correlation coefficient 0.74) remained the strongest in all TIMSS countries (with an increase up to 0.82 for *Life science*, and a decrease to 0.56 for *Physics*). This group was more stable for science than for mathematics: Ireland had more weight, and the link USA–Australia was also strengthened. As a consequence, the group became more homogeneous, especially in *Life science* where the alpha coefficient was 0.89. *Physics* was a weaker area for this group, but still the similarities between the countries were strong enough to keep the group together (the alpha was 0.79).

The factor analysis for these 7 countries yielded two factors with eigenvalues of 3.88 and 1.12, explaining 71.4 percent of the variation. After rotation (varimax method was used), an analysis of the loadings yielded the names *English-speaking countries - United Kingdom* (f_UK) for the first factor, and *English- speaking countries - America* (f_Am) for the second, as was found in the mathematics achievement results.

The four Nordic countries of Iceland, Denmark, Norway and Sweden formed the second group. The links between three countries in this group were about the same for all science sub scales with the exception of *Environment and nature of science* (the alpha was only 0.40), where Iceland stood out (all correlations with the three other Nordic countries were negative!). This country was the weakest member of the group in *Earth science* and in *Chemistry*, where quite strong links to New Zealand (0.64), and the Netherlands (0.58) were found. The factor analysis for these 4 countries yielded an eigenvalue of 2.16 explaining about 54 percent of the variation in the Nordics group.

Table 9
Correlations and Factor Analysis for Science
Nordic Group

Denmark	DEN	***		alpha	0.71	DEN	0.60	0.77
Iceland	ICE	0.36	***			ICE	0.33	0.58
Norway	NOR	0.43	0.31	***		NOR	0.63	0.80
Sweden	SWE	0.46	0.20	0.54	***	SWE	0.59	0.77
		DEN	ICE	NOR	SWE		communality	factor

As was mentioned earlier, the other two groups of countries had scattered patterns. The East Asian group with Hong Kong, Japan, Korea and Singapore split into two pairs: Hong Kong – Singapore (on the total science scale the correlation was 0.26, in *Physics* 0.55, and in *Chemistry* -0.23!), and Japan – Korea (0.36, in *Chemistry* 0.66, compared with -0.11 for *Earth science*). The Cronbach alpha for the total science scale was 0.47, but it ranged from -0.08 for *Environment and Nature of science* to 0.57 for *Life science* and 0.53 for *Chemistry*. Nevertheless, these figures were too low to coalesce the countries into one group.

The eight CEE countries formed a group in mathematics, but for science the situation was more complex.

Table 10
Correlations for Science
Post-Communist Group

Bulgaria	BGR	***								
Czech R.	CZE	0.07	***				alpha	0.71		
Hungary	HUN	0.04	0.18	***						
Latvia	LVA	0.14	-0.00	0.27	***					
Lithuania	LTU	0.18	0.24	0.15	0.39	***				
Romania	ROM	0.29	0.34	0.21	-0.03	0.30	***			
Russia	RUS	0.24	0.24	0.12	0.32	0.48	0.44	***		
Slovak R.	SVK	-0.05	0.51	0.18	0.01	0.09	0.28	0.22	***	
Slovenia	SLV	0.03	0.32	0.22	0.25	0.16	0.33	0.12	0.31	***
		BGR	CZE	HUN	LVA	LTU	ROM	RUS	SVK	SLV

Formally, the measure of the homogeneity of the group – Cronbach's alpha for overall science scale – was quite high and was 0.71 (ranging from 0.68 for *Physics*, to 0.78 for *Chemistry*). A cut-off point of 0.75 was defined for alpha to form a group. For the Nordics group and for the CEE group, the coefficients were somewhat lower than the cut-off point – 0.71 in both cases. The Nordic countries were grouped, but the analysis of the matrix of the correlations for CEE countries group showed large diversity among countries, especially in the relationships for the different subjects of science. Firstly, Bulgaria was different: in *Physics* this country was similar to the Russian Federation (0.41) and Romania (0.41), but in *Chemistry* similar to Japan (0.49). The subscale *Environment and Nature of science* disturbed this grouping. Also noteworthy are the links between the pairs Hungary – Germany (0.79), Lithuania – France (0.48), Russia – Greece (0.59), Slovakia – Greece (0.65) as well as Lithuania– Slovenia (0.66), Russia – Slovakia (0.74). The factor analysis yielded three eigenvalues above 1, and the explanations of these three factors became quite complex. Therefore, the decision was made not to form the CEE countries into one group.

Discussion

The process of the grouping of countries indicated the high similarity between some countries, but from another point of view showed that some countries were different from these groups. An examination of some of the countries not included in the groups has been undertaken. The relationship of these countries with the main trends of groups, extracted by factor analysis above, is mentioned first, followed by some analyses of the pairing of countries.

Only two significant links with factors could be seen for **Austria**: this was in mathematics with Central Europe countries f_CE (correlation 0.36), and with East Europe countries f_EE. (-0.23). Austria was most linked to its neighbor Germany (0.40 in math, 0.58 in science, with 0.85 for *Life science*). Other interesting links were with Norway (0.51 in *Algebra*), Switzerland (0.41 in science), Czech Republic (0.49 in *Life science*), Ireland (0.55 in *Chemistry*), Israel (0.52 in *Chemistry*). For *Earth science* some obscure relationships could be noted with Kuwait (0.55), and the Philippines (0.44).

There were no significant correlations for **France** with other countries, except a weak 0.22 in mathematics with Nordic countries f_No. It was not unexpected that France in mathematics was most similar to the French part of Belgium (Belgium took the part in TIMSS education with two subsystems – Flemish and French, according to the prevalent language used in education in the country). The correlation coefficient was 0.33. Some of the CEE countries were traditionally influenced by French ideas in mathematics education and this fact can be seen in the analyses: in the subscale*Algebra*, France was correlated with the Russian Federation (0.32), in *Geometry* with the Czech Republic (0.49), and Lithuania (0.47). The French part of Belgium was most similar to France in Science (0.67, with an increase to 0.87 in *Chemistry*). Some other interesting links were in *Physics* to Denmark (0.45) and in *Chemistry* to Switzerland (0.69).

The most interesting links for **Germany** were the negative relationships with the East Asian factor f_As (-0.51) and with East Europe factor f_EE (-0.32). At the same time, Germany was quite similar to the United Kingdom part of the English-speaking countries group (correlation with f_UK was 0.41). Germany, as was mentioned above, was similar to Austria. In math some other links to Switzerland (0.41), Norway (0.40), and in *Algebra* to Greece (0.67), Portugal (0.56) could be mentioned too. Switzerland was similar to Germany in science (0.54), together with France (0.50), Norway (0.49) in *Chemistry* and to the Netherlands in *Physics* (0.42).

There were threecorrelations with factors for **Israel:** two of them negative (-0.22 with f_UK, and -0.30 with f_No), and one positive 0.21 with f_EE. The country most similar to Israel in mathematics was Cyprus (0.36), especially in *Algebra* (0.60), and *Geometry* (0.53). There was also a high correlation between Israel and the Russian Federation in *Geometry* (0.55). It was difficult to identify similarities with Israel in science, except some links with Cyprus (0.44 in *Earth science*), and Austria (0.52 in *Chemistry*).

The Netherlands was like aninternational cross-roads: in mathematics +0.62 with f_UK, –0.48 with f_EE, +0.45 with f_No, –0.32 with f_CE. For science the relationships were weaker: 0.23 with f_Am, and 0.24 with f_No. In mathematics there were common patterns with Austria (0.52, with an increase to 0.66 in *Algebra*), England (0.56), New Zealand (0.60), Sweden (0.59), and in *Geometry* to the USA (0.64). The neighbouring education system, Belgium-Flemish, was most similar in science (0.48, with increase till 0.57 in *Physics*, and even to 0.82 in *Chemistry*). Some other interesting links were: in *Physics* with Germany (0.42), in *Chemistry* with Switzerland (0.64), in *Earth science* with Sweden (0.51).

Spain had something in common in mathematics with f_CE (0.26), but was negatively correlated with Nordics and East Asian countries (-0.22 with f_No, -0.28 with f_As). Spainin mathematics was most similar to its neighbor Portugal (0.39, with an increase to 0.58 in *Geometry*), with a possible link to Slovenia (0.37), and some relationship with the USA (0.46 in *Geometry*). The linguistic similarity had an impact on science education: correlation with Colombia (0.27), Portugal (0.39, with an increase to 0.61 in *Earth science*). Some other similarities were with the USA (0.46 in *Physics*), Greece (0.62 in *Chemistry*), and Norway (0.59 in *Earth science*).

In mathematics the pattern of **Switzerland** was interesting (+0.49 with f_No, –0.41 with f_EE, +0.29 with f_UK, –0.28 with f_As), and in science there was just one significant link (0.32 with f_No). Switzerland was quite similar in mathematics to Nordic countries Norway (0.37) and Sweden (0.46), and had common patterns in *Geometry* with New Zealand (0.58) and Canada (0.44). In science Switzerland was similar to Belgium-French (0.41, with an increase to 0.67 for *Physics*, 0.78 for *Chemistry*), as well as was linked with Austria (0.51 in *Life science*), France (in *Physics* 0.43, in *Chemistry* 0.69), the Netherlands (in *Chemistry* 0.64), Germany (in *Earth science* 0.63), Belgium- Flemish (in *Chemistry* 0.81).

This article could be viewed as an attempt to measure something that some might say was unmeasurable. It is impossible to measure everything in education by converting the complexities and idiosyncrasies of nations into figures. Tables with correlation coefficients presented in this paper do not explain everything that is going in the schools of these countries. But sometimes it is useful to see "well-known truths" converted into the language of figures.

Notes

1. *Many visions, many aims. A cross-national investigation of curricular intentions in school mathematics*. Kluwer, 1996.
2. *Many visions, many aims. A cross-national investigation of curricular intentions in school science*. Kluwer, 1996.
3. *Mathematics Achievement in the Middle School Years: IEA's Third Intentional Mathematics and Science Study (TIMSS)*. Boston College, 1996.
4. *Science Achievement in the Middle School Years: IEA's Third Intentional Mathematics and Science Study (TIMSS)*. Boston

College, 1996.

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Predicting Variations in Mathematics Performance in Four Countries Using TIMSS

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Abstract

Although international comparisons of average student performance are a staple of U.S. educational debate, little attention has been paid to cross-national differences in the variability of performance. It is often assumed that the performance of U.S. students is unusually variable or that the distribution of U.S. scores is left-skewed – that is, that it has an unusually long 'tail' of low-scoring students – but data from international studies are rarely brought to bear on these questions. This study used data from the Third International Mathematics and Science Study (TIMSS) to compare the variability of performance in the U.S., Australia, France, Germany, Hong Kong, Korea, and Japan; investigate how this performance variation is distributed within and between classrooms; and explore how well background variables predict performance at both levels. TIMSS shows that the U.S. is not anomalous in terms of the amount, distribution, or prediction of performance variation. Nonetheless, some striking differences appear between countries that are potentially important for both research and policy. In the U.S., Germany, Hong Kong, and Australia, between 42 and 47 percent of score variance was between classrooms. At the other extreme, Japan and Korea both had less than 10 percent of score variance between classrooms. Two-level models (student and classroom) were used to explore the prediction of performance by social background variables in four of these countries (the U.S., Hong Kong, France, and Korea). The final models included only a few variables; TIMSS lacked some important background variables, such as income, and other variables were dropped either because of problems revealed by exploratory data analysis or because of a lack of significance in the models. In all four countries, these sparse models predicted most of the between-classroom score variance (from 59 to 94 percent) but very little of the within-classroom variance. Korea was the only country in which the models predicted more than 5 percent of the within-classroom variance in scores. In the U.S. and Hong Kong, the models predicted about one-third of the total score variance, and almost all of this prediction was attributable to between-classroom differences in background variables. In Korea, only 19 percent of total score variance was predicted by the model, and most of this most of this was attributable to within-classroom variables. Thus, in some instances, countries differ more in terms of the structure and prediction of performance variance than in the simple amount of variance. TIMSS does not provide a clear explanation of these differences, but this paper suggests hypotheses that warrant further investigation.

Introduction

International comparisons of average student performance are widely discussed by policymakers and the press and have had a powerful influence on educational debate and policy in the US. In an era when traditional norm-referenced reporting of student performance ostensibly has gone out of favor, "country norms" have become an increasingly important indicator of the success of US education and the levels of performance to which this country should aspire. The publication of the results of the Third International Mathematics and Science Study (TIMSS) over the past several years (Beaton et al., 1996a, 1996b; Mullis et al., 1997, 1998) has increased further the prominence of international comparisons in the US debate.

Much of the discussion of international comparisons has focused on horse-race comparisons of means or medians. Although presented in TIMSS reports, information on the *variability* of student performance has usually been ignored in the US debate or has been used in a lopsided and potentially misleading fashion. Typically, the variability in the US has been considered, while the variability in the countries to which the US is compared has been ignored. For example, earlier this decade, the results of the 1991 International Assessment of Educational Progress (IAEP) were projected onto the National Assessment of Educational Progress (NAEP) scale, permitting comparison of countries participating in IAEP to states participating in the 1992 NAEP Trial State Assessment in mathematics. These comparisons, which have been widely cited, showed that the highest-scoring US states, such as Iowa and North Dakota, had mean scores similar to those of the highest-scoring countries, such as Taiwan and Korea (National Center for Education Statistics, 1996, Figure 25). High-scoring regions in Taiwan and Korea, however, were not compared to the US mean.

Underlying some of these comparisons appears to be an expectation that the variability of student performance is atypically large in the US. Indeed, some observers have made this expectation explicit. For example, Berliner and Biddle, in disparaging the utility of international comparisons of mean performance, wrote:

> The achievement of American schools is a *lot* more variable than is student achievement from elsewhere....To put it baldly, American now has some of the finest, highest-achieving schools in the world—and some of the most miserable, threatened, underfunded educational travesties, which would fail by any achievement standard (1995, p. 58, emphasis in the original).

To buttress this assertion, they cited the NCES comparisons of US states and foreign nations noted above, which displayed no information about the variation of performance in other countries and included no information about the variation of performance among schools within any country.

Research Questions

This study was undertaken to explore the variability of performance in the US and several other countries using TIMSS data. Specifically, the study explored two primary questions:

1. How large is the performance variation in our sample countries, and how is this variation distributed between and within classrooms?

2. How well do background variables predict performance variation in our countries, both within and between classrooms?

The results reported here are limited to mathematics in the higher grade in Population 2 (grade 8). We focused on Population 2 rather than Population 1 (elementary grades) because of doubts about the validity and utility of self-report data from elementary school students.(Note 1) Population 3 (end of high school) presented formidable difficulties of sample non-equivalence. The analyses focused on mathematics because the TIMSS sample design which selected students based on the mathematics classes they attended rather than the science classes (Foy, Rust, and Shleicher, 1996, p. 4-7). This precluded decomposition of score variation and hierarchical modeling in science.

Methods

To answer these research questions, our analyses proceeded in two steps:

1. We compared the distributions of student-level performance across all the countries in the Population 2 sample.
2. We used a smaller, purposive subsample of countries to analyze the variability in student performance between and within classrooms and to explore the contributions of student background characteristics to both of these sources of variability.

The performance measure used in all analyses was BIMATSCR, the "international mathematics achievement score" (Gonzalez, Smith et al., 1997) used in TIMSS published reports for Population 2. Technically, BIMATSCR is not a score in the traditional sense, but it is labeled a score here for simplicity. TIMSS was designed to provide aggregate estimates but not scores for individual students. In lieu of scores, TIMSS provides for each student five plausible values, which are "random draws from the estimated ability distribution of students with similar item response patterns and background characteristics" (Gonzalez, Smith et al., 1997, p. 5-1). In this respect, TIMSS followed a variant of the procedures NAEP has used since 1984. In the case of Population 2, however, scores were conditioned only on country, gender, and class mean, not on background variables (Gonzalez, 1998). In theory, the variance of repeated estimates using different plausible values should be added to the sampling variance to obtain an estimate of error variance for statistics calculated with plausible values. However, Gonzalez, Smith et al. (1997, p. 5-8) report that the intercorrelations among TIMSS plausible values are so high that this error component can be ignored. It was not calculated for statistics reported in this paper.

The step 1 analyses are purely descriptive and use data available in TIMSS publications (Beaton et al., 1996a and 1996b; Mullis, et al., 1997, Martin et al., 1997).

Our initial purposive subsample for the more detailed analyses in step 2 included seven counties: Australia, France, Germany, Japan, Hong Kong, Korea, and the US. Japan and Korea were selected because they are often used as examples of high-performing countries in comparisons with the US. Germany was included because it is often noted in discussions of the competitiveness of the US workforce. Hong Kong was included because it has both parallels with and interesting differences from Japan and Korea. France was included because in eighth-grade mathematics, it showed an unusually small variance of performance. Australia was considered primarily for methodological reasons. Although we present some results for all seven countries, we limited modeling of the predictors of variance to four: the US, France, Hong Kong, and Korea.

Students in Japan did not complete the survey items used in the modeling. Response patterns for students in Germany made us suspicious of that country's data. Since Australia was included more for methodological than for substantive reasons, we dropped it from the modeling because of similarities in the preliminary results from Australia and other countries.

In our second stage analyses we decomposed the variance among students scores from each of the countries into the variance within classrooms and the variance between classrooms, and in the four primary countries, we explored the predictors of variance at each of these levels. Ideally one would want to decompose the variance into at least three levels: within classrooms, between classrooms within schools, and between schools. The school and classroom levels of aggregation are not exchangeable. For example, a decision to track students on the basis of ability would increase the variance between classrooms within schools while decreasing the variance within classrooms, but it would not directly affect the variance between schools. Conversely, residential segregation on the basis of social class would increase performance variance between schools, but it could decrease the variance between classrooms within schools by making schools more homogeneous with respect to achievement.

In all countries other than the US, Australia, and Cyprus, however, the TIMSS Population 2 sample consisted of a single classroom per school. Therefore, in most countries, one can only specify a two-level model in which variations in performance between schools and between classrooms within schools are completely confounded. Accordingly, we decomposed the variability in math scores from each of the four countries into within classroom variability and between classroom variability. The between classroom variability includes contributions from both the variation of classrooms within schools and the variation between schools.

To fit these models we sacrificed some of the richness of the US data in order to obtain comparable to the results from all four countries. We did this by creating a subsample of the US samples that consisted of a single classroom per school, randomly selected from the multiple classrooms in the original sample. We modified the sample weights and jackknife replicates used in variance estimation accordingly.

Our step 2 analyses followed the same course in each country and extended from simple exploratory data analysis (EDA) to hierarchical modeling. Extensive EDA was used to explore individual-level and classroom-level variations in performance and background variables, to determine whether background variables showed sufficient variability to be usable in analysis, to determine whether the relationships between background variables and performance appeared sensible, and to decide whether and how to categorize variables. The patterns uncovered by this EDA substantially constrained our analyses in several instances.

Simple bivariate relationships between performance and background variables were examined for all of the variables considered for the hierarchical models. When necessary, variables were recoded so that a positive relationship with scores would be expressed as a positive correlation. The bivariate analyses were carried out three ways because of the inherently hierarchical nature of the data: (1) student-level uncentered (i.e., simple student-level analyses without regard to classrooms); (2) student-level, centered on classroom means (corresponding to the within-classroom component of variance); and (3) classroom-level (corresponding to the between-classroom component of variance).

Hierarchical modeling using multiple background variables followed bivariate analyses. The models include the classroom mean for each background variable and the individual student-level values, centered on classroom means. With centering, the coefficients produced by the model separately measure each variable's contribution to both the between- and within-classroom variability.

TIMSS used a complex sampling plan with unequal probability of selection among schools from each country's sample. To account for this disproportionate sampling, all analyses reported here are weighted unless noted. Weighted analyses produce consistent estimates of model parameters even if the sample design is disproportionate or more technically nonignorable (see, e.g., Pfefferman, 1996 for discussion on the use of weights in model fitting). We used the methods of Pfefferman et al. (1998) to fit our weighted hierarchical models using specially written SAS macros. (For the macro and more detail on methods, see Koretz, McCaffrey, and Sullivan, 2000.)

Distributions of Student-Level performance in TIMSS

Basic information about the size of the performance variation in participating countries, analyzed at the level of students without regard to aggregation, is provided in TIMSS publications. Appendices to the reports provide standard deviations and selected percentiles (5th, 25th, 50th, 75th, and 95th) of the performance distributions (Beaton et al., 1996a and 1996b, Appendix E; Mullis et al., 1997, Appendix C; Martin et al., 1997, Appendix C).

At the level of individual students, the eighth-grade mathematics performance of US students was near the median of the 31 countries that met the TIMSS sampling requirements for the eighth grade (see Beaton, et al., 1996a, Tables 2.1 and E.3). The country-level standard deviations varied greatly, from 58 to 110, but half were clustered in the narrow range from 84 to 92. The median standard deviation across the 31 countries was 88. The standard deviation of the US sample was 91, only slightly above the international median. Among these 31 countries, the country-level standard deviation of eighth-grade mathematics performance was strongly predicted by country means: the higher the mean, the larger the standard deviation (r=.71; see Figure 1). Seen this way, the standard deviation of mathematics performance in the US was about nine percent higher than the value that would be predicted from the US mean. Numerous other countries, however, had standard deviations that deviated comparably from those predicted by their means. For example, clustered tightly around the US in Figure 1 are England and New Zealand, and Germany would be as well if it were included in Figure 1. Germany does not appear in Figure 1 because it did not meet all sampling requirements. (In eighth-grade science, the standard deviation in the US was indeed one of the largest, but it is not an outlier; see Koretz, McCaffrey, and Sullivan, 2000.)

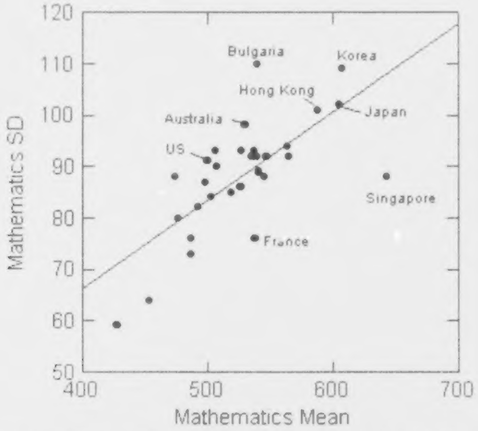

Figure 1. Plot of Mathematics Standard Deviation by Mathematics Mean, Grade 8, 31 Countries Meeting Sampling Requirements

(based on Beaton et al., 1996a)

Figure 1 rebuts the common notion that high-scoring Asian countries have a more equitable (i.e., narrower) dispersion of performance, at least in eighth-grade mathematics. All three of the Asian countries in our sample have larger standard deviations than does the US: Hong Kong's and Japan's standard deviations are roughly 10% larger than that in the US, and Korea's is approximately 20% larger. Among our sample of seven countries, only France has an unusually small standard deviation of eighth grade mathematics performance, either in absolute terms or relative to its mean.

In grade 8 mathematics, TIMSS also calls into question the view that the US mean is pulled downward by a distribution with an unusually long left-hand (low-scoring) tail. As shown in Figure 2, the US distribution shows a slight right-hand skew rather than a left-hand skew. The US mean is not pulled downward because of a small number of low scoring students. Figure 2 compares the US distribution to the data from Korea. The Korean distribution is substantially wider, as its larger standard deviation indicates. The right-hand tails of the distributions in the two countries are nearly parallel. The left-hand side of the distribution is much shorter in the US, however, pulling the US tail closer to the Korean tail. (Note 2)

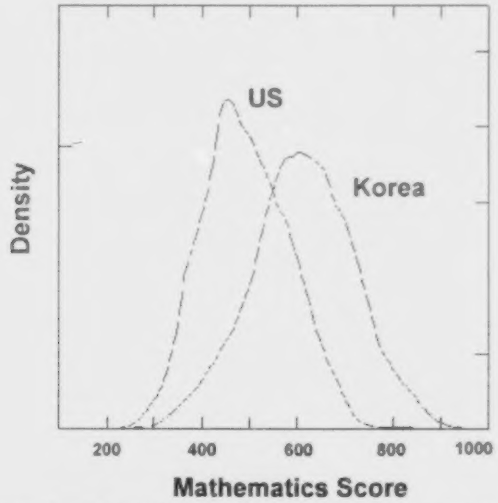

Figure 2. Distributions of Mathematics Scores, Grade 8, Korea and US.
This plot is unweighted. Weighting has virtually no effect on the distribution of scores in Korea and only a trivial effect on the distribution in the US.

Simple Decomposition of Performance Variance in Four Countries

The previous discussion demonstrates that the overall distribution of student level performance in the US is not anomalous. However, looking only at the overall variability might miss important differences between performance in the US population compared to that of other countries. For example, the extent to which the variability is clustered, e.g., within classrooms or schools, might vary across countries. In addition, the possible sources of the variance might also differ across countries, which would suggest different interpretations of the variability of performance and different policy responses to low mean performance in the US. We used data from all seven countries to determine the clustering of variability within and between classrooms. As noted above, we focus on the classroom rather than the school because the TIMSS sample makes it impossible to distinguish clustering within schools from clustering within classrooms.

The decomposition of mathematics score variance into within- and between-classroom components is sufficient to reveal striking differences among the seven countries in our sample. In the US, Hong Kong, Germany, and Australia, a bit over half of the total variance in eighth-grade mathematics scores lies within classrooms (Table 1). In contrast, in Japan and Korea, over 90 percent of the variance lies within classrooms. France is intermediate, with about three-fourths of the total variance lying within classrooms.

Table 1
Percent of Score Variance Within and Between Classrooms

Country	Percent Between	Percent Within
Australia	47%	53%
France	27	73
Germany	45	55
Hong Kong	46	54
Japan	8	92
Korea	6	94
US	42	58

Similarities among some countries in this decomposition of variance, however, might mask important differences that would be come apparent if TIMSS made it possible to distinguish between-school from between-classroom variance. For example, Schmidt, Wolfe, and Kifer (1993) partitioned the variance of eighth grade mathematics scores in six countries using data from the Second International Mathematics Study, which had two classrooms per school in a number of countries. They found striking differences among countries in the partitioning of aggregate variance. In France, for example, they found that two-thirds of the aggregate variance lay between schools, while in the US, only 9 percent of the aggregate variance lay between schools (with the remainder lying between classrooms within schools).

The average classrooms in our sample of seven countries differ strikingly in their heterogeneity of performance, with the US showing relatively little variability within classrooms. The heterogeneity of performance within classrooms depends on both the total variance of performance in each nation and the breakdown of this variance into within- and between-classroom components. Japan and Korea have slightly larger national standard deviations than the US in Population 2 mathematics and also have a much larger share of their total variance lying within classrooms than does the US. Therefore, the typical within-classroom standard deviation in mathematics is considerably larger in Japan (96) and Korea (102) than in the US (74). (See Table 2.) The average classrooms in France, Germany, Hong Kong, and Australia are more similar to that in the US in heterogeneity.

Table 2
Within-Classroom Standard Deviations

Country	Standard Deviation
Australia	83
France	63
Germany	64
Hong Kong	73
Japan	96
Korea	102
US	74

Multilevel Models of Performance Variation

As noted, we used data from four countries, the US, France, Hong Kong, and Korea, to explore the relationships between performance variation and background variables.

Based on research showing which background characteristics predict student performance in the US, we chose to examine parental education, other measures of socioeconomic status and family composition, measures of academic press in the family and community, and a few measures of student attitudes. We also examined the effect of student age, which could predict performance in at least two ways. Through maturational effects, older students might be expected to perform better than others do. On the other hand, to the extent that students who do poorly in school are held back in grade, older students in a given grade might be expected to perform more poorly than others, particularly in the higher grades. Variations in age at entry could also affect later scores in several ways.

We did not examine curricular variables. As measured, these will not predict variation within classrooms, and research in the US has generally shown variations in schooling to be less powerful predictors of performance than background factors. However, curricular differences may be important predictors of performance variation between classrooms within schools (for example, when students are tracked by ability) and between schools (when schools differ substantially in curriculum). Moreover, important curricular variables are likely to be correlated with background variables. Thus, the results we report here should not be interpreted as clear effects of background variables. Rather, they are likely joint effects of the measured background factors, educational factors collinear with them, and other omitted variables correlated with the measured variables.

Selecting Variables for Inclusion

As noted, exploratory data analysis revealed limitations in some variables that constrained their use in formal models. The few examples presented here illustrate that EDA has particular importance in comparative, international studies because variables may behave differently in different countries.

Although TIMSS includes numerous attitude and press variables, we focused on a set of 15 Likert variables that asked students how strongly they disagreed or agree with statements that the student's mother, the student's friends, and the student herself considered it important to do well in mathematics, do well in the language of the test, do well in sports, be in a high-achieving class, and have time to have fun. EDA showed these press and attitude variables to be problematic in several respects. In some instances, responses showed little variation. Some relationships with scores were not what one would anticipate if the variables were measuring the intended constructs. In several instances, data showed suggestions of response bias.

For example, several problems can be seen in the responses of eighth-grade students to the BSBMMIP2 press for achievement variable, "My mother thinks it is important for me to do well in mathematics at school" (Figure 3). Each of the six panels arrayed across Figure 3 represents the results from a different country. In the figure we include the four countries in our analysis sample as well as Australia and Germany; this item was not administered in Japan. The common vertical axis, labeled BIMATSCR, is the final TIMSS mathematics score. The four categories of responses to the survey question are arrayed on the X-axis of each panel: SD = strongly disagree, D = disagree, A = agree, and SA = strongly agree. The vertical position of each plotted circle indicates the mean score of the students in that country who gave that particular response to the background question. The radius of each circle is proportional to the percent of students within each country who provided that particular response. The range of sizes is constrained to make the graphic intelligible, however, and in the case of variables with extreme differences in cell counts, including some cells in Figure 3, the relative sizes of the circles understate the actual differences in cell counts.

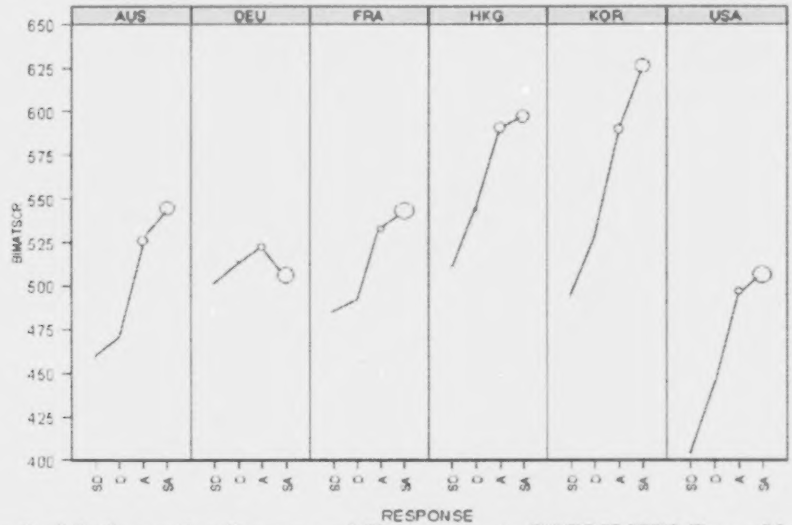

Figure 3. Mathematics Scores and Responses to BSBMMIP2 Press Variable

In all the six countries other than Germany, the relationship between scores and responses to the "My mother thinks it is important for me to do well in mathematics at school" variable was in the anticipated direction: the more strongly students agreed with this statement, the higher their average scores. In most countries, however, this relationship stemmed in large measure from very small groups of students who "disagree" or "strongly disagree" with this statement, and the group that included most students showed only weak relationships. In the US, for example, 97 percent of all students are in the "strongly agree" and "agree" categories, the mean mathematics scores of which differed by only 10 points. The "disagree" and "strongly disagree" categories had markedly different score means but contained only 2 and 1 percent of students, respectively. This variable is likely to have relatively little utility in predicting score variability in the sampled countries, even if maternal press for achievement is an important influence.

The data from Germany in Figure 3 show an unusual pattern and demonstrate the value of EDA. The relationship between this press variable and scores is not monotonically positive in Germany; the strongly agree and strongly disagree groups had approximately the same mean scores. This pattern, which appeared repeatedly across the TIMSS press and attitude variables in the German data, calls the validity of the responses into question. Because of patterns such as these and the less than optimal sampling in Germany, we did not model the relationships between background variables and scores in Germany. The extremely strong positive relationship in Korea, which also appeared repeatedly, was also grounds for concern. For example, the strong very strong positive relationship appearing in Korea extended to "I think it is important be placed in the high achieving class," even though eighth-grade classes are not tracked by achievement in Korea (Hyung Im, 1998). However, the response patterns in Korea to the variables we used in modeling were not sufficiently suspect in our judgment to warrant excluding Korea from modeling.

The relationships between some other press variables and student performance varied markedly, sometimes dramatically, among countries. These differences among countries could have several causes. There might be response biases, either consistent or item-specific, that vary among countries. Translation problems could engender misleading response differences. There might be substantive reasons for these differences as well; for example, press variables might in fact have stronger relationships with student performance in some countries than in others, perhaps because of differences in the correlations between press variables and school characteristics or between press variables and ethnicity.

TIMSS also includes press variables that one would expect to show weak or even negative relationships with scores. One set, for example, asks students how strongly they agree with the statements that mother, friends, and the student herself think it is important to have time to have fun. One might expect that students who think it particularly important to save time for fun might be less willing to put long hours into study and would therefore score lower. T>wo of the strongest *positive* predictors of mean scores from this set of variables, however, are the strength of agreement with the statements "I think it is important to have time to have fun" (BSBGSIP4) and "My friends think it is important for me to have time to have fun" (BSBGFIP4).

In response to these findings, we used only two of these 15 press variables in our models: the strength with which the student agreed that the mother and the student herself consider it important to do well in mathematics. We pooled these two variables for each subject, creating a single "press for mathematics variable" variable from the students' responses pertaining to themselves and their mothers. These composites were the mean of the two variables for the subject when both were present and whichever was present when one was missing. The decision to pool these two variables, which is consistent with the logic of Likert scales, was made because the two press variables taken individually had only insubstantial relationships with scores, while the composite showed stronger relationships with scores.

We also examined the quality of data for 10 student and family background variables: whether the student was born in the country of testing; mother's and father's educational attainment; number of people in the home; whether the father, mother, and any grandparents lived with the student; how many books were in the home; and whether the home had a study desk and a computer. Fewer problems appeared with background variables than with press and attitude variables. Missing data and "I don't know" responses, however, posed serious difficulties, particularly in France.

In all of our countries, responses to the questions about parents' educational attainment were missing for a substantial percentage of students. This problem was particularly severe in France (where 17 percent were missing for fathers and 16 percent for mothers). More important, of the students who responded to these question, many answered "I don't know." This problem was particularly severe in France, where 34 percent responded "I don't know," so that a total of 50 percent of respondents provided no informative answer (Table 3). Efforts to impute values were unsuccessful. Thus, we had to choose between omitting parental educational attainment from models in France in order to use most of the sample, or including parental education and using a substantially reduced sample. We opted to include mother's education at the cost of using a reduced sample. Comparisons of preliminary models indicated that the choice between these options probably affected parameter estimates but did not to have a major on the overall prediction of score variance. Although our interpretation focuses on the latter, any interpretation of the results from France should be taken with caution because of this limitation of the data.

Table 3
Percent of Students with No Response or Response of "I don't Know" to Question About Mother's Educational Attainment

	Missing	I don't know	Total
Australia	4%	15%	18%
France	13	34	47
Germany	9	21	30
Hong Kong	5	9	14
Korea	0	9	9
USA	3	7	11

Two variables, mother's educational attainment and number of books in the home, illustrate another issue that can arise in comparative studies – that is, it may be desirable or necessary to treat variables differently in different countries. Both variables showed substantial but not always monotonic positive relationships with achievement. For example, the mean mathematics scores of students whose mothers were in the "finished secondary" and "some vocational" categories were not in the same order in all countries. We combined these categories in all countries except Hong Kong. In Hong Kong, small samples and a different pattern of means suggested collapsing the "some vocational" category of maternal education with "finished university." Similarly, in France only, the mean scores of the students reporting the largest number of books was lower than that of the category below, so we collapsed those two categories into a single category for the French model. We did not collapse these groups for other countries.

The variables used in the final modeling are noted in Appendix A.

Specifying Multilevel Models

The multilevel models reported here are simple "fixed coefficients" models (Kreft and DeLeeuw, 1998). That is, the coefficients estimating the level-one relationships between background factors and achievement (student-level relationships within classrooms) are held constant across classrooms within countries. Between-classroom effects were thus limited to differences in intercepts. In general form, this model is:

$$y_{ij} = \alpha + \beta(x_{ij} - \overline{x}_j) + \gamma \overline{x}_j + \varepsilon_{ij}$$

...where the subscript *i* indicates individuals, *j* indicates classrooms, an underscore indicates a vector, and a bar over a variable indicates a mean. That is, a student's score reflects a vector of background variables weighted by a vector of regression coefficients, a vector of classroom means of those same background characteristics weighted by a second vector of coefficients, and random error. The coefficients applied to individual characteristics are unaffected by classroom characteristics. (That is, there are no cross-level interactions.) Equivalently, this can be expressed in terms of two levels as follows:

$$y_{ij} = \alpha_j + \beta(x_{ij} - \overline{x}_j) + \varepsilon^*_{ij}$$
$$\alpha_j = \alpha + \gamma\overline{x}_j + \eta_j$$
$$\varepsilon_{ij} = \eta_j + \varepsilon^*_{ij}$$

In other words, the intercept in each classroom is the sum of the overall intercept and the sums of the classroom aggregate variables weighted by the classroom-level regression coefficients, plus error. The score of each individual student is then the sum of that student's classroom intercept and the sum of the student-level background variables weighted by the student-level regression coefficients, plus error. Preliminary analysis indicated that little would be gained by allowing the within-classroom slopes to vary randomly or by modeling their variation.

These models center observations around classroom means. Without group-mean centering, the predictor variance within and between classrooms would be confounded. Centering eliminates confounding of the predictor variance between and within classrooms. Centering also makes the model's coefficients straightforward estimates of the within-classroom and between-classroom effects (e.g., Bryk and Raudenbush, 1992).

We began with the assumption that all variables that survived screening by EDA would be included in the models. Including some that survived the EDA, however, resulted in numerous small and statistically non-significant parameter estimates. We therefore constructed models based on what could be called a 'judgmental stepwise' procedure, in which we began with a null model (i.e., a model including nothing but an intercept), built up to a more complex model, and then pared back to a more parsimonious model based on the size and significance of coefficients.(Note 3) In general, we opted to include variables that were only marginally significant or that failed to reach significance by a modest amount, leaving it to the reader to discount them, provided that their inclusion did not markedly change the coefficients of other variables. In addition, because our classroom-level variables are aggregates of student-level variables, we included at both levels any variable that was significant at either level.

The statistics normally reported from hierarchical models—intercepts and regression coefficients at each level of aggregation—are sufficient for predicting means but not for comparing variance of performance across countries. For example, at the classroom level, the estimated effect of the proportion of students living with their fathers indicates how much, on average, the classroom mean score would increase if the proportion increased from 0 to 1, but it does not indicate how much of the variability among classroom mean scores is attributable to this factor. Therefore, we also present a summary of the variance accounted for by the predictors at each level, expressed as the absolute value of the predicted variance, the percentage of variance predicted within level, and the percentage of total variance predicted.

Decomposing Performance Variation

We first give a detailed discussion of the models for the US. This discussion serves as a template for evaluating the results of the other models. We then compare the results from the four countries.

The final two-level model of mathematics scores in the US contained only five variables at each level: the number of books in the home, the presence of a computer in the home, the presence of the father in the home, the academic press variable, and student age. The square of age was included because of nonlinearities in the relationships between age and scores that became apparent in the exploratory data analysis. Each of these variables was at least marginally significant at one of the two levels.

The importance of these predictors can be evaluated several ways. One can look at the significance and impact of the individual coefficients within each level, the relative significance or impact of the coefficients across levels, and the total predictive power of the coefficients at each level. These three views are each described in turn.

Within classrooms in the US, the strongest effects were those of the number of books, the academic press variable, and students' age (Table 4). The effects of having a computer and the father living at home were both smaller and non-significant. Comparisons of these parameter estimates, however, is clouded by their imprecision. Confidence bands around most of these estimates were wide (see Appendix B).

Table 4
Two-Level Models of Mathematics Scores

Variable	United States	France	Hong Kong	Korea
Intercept	-351.7	592.6	-424.8	27.9
Within class (b)				
Number books	7.9**		0.3	20.2**
Computer present	4.4		-3.8	10.9**
Father present	1.7	8.9*	-7.4	
Mother's education		4.6		
Father's education				9.5**
Press	9.6**	8.6*	10.3**	36.2**
Age	-14.4**	-18.2**		-6.0
Age^2	-6.9	-0.6		-14.8**
Born in Country			-19.1**	
Between-class (c)				
M Books	45.5**		44.1**	16.2*
M Computer	37.2*		89.8*	44.5**
M Father present	90.3**	59.5**	326.9**	
M Mother's education		26.4**		
M Father's Education				18.8**
M Press	43.2**	45.0**	174.5**	47.4**

M Age	33.9	-23.0*		20.5
M Age^2	-149.4	-23.3		-26.2*
M Born in Country			-44.7	
Residual variances				
r^2 (within)	4570.4	4040.8	5485.0	9290.6
t (between)	766.2	554.7	1406.2	48.0

NOTE. All estimates of significance reflect jackknifed estimates:
* $p<.05$ ** $P<.01$

The effects of these estimates can be compared to the distribution of scores to provide a concrete estimate of their size. For example, in the US, the estimated student-level effect of the number of books was 7.9. This variable had five categories. The model predicts that holding constant the other variables, the mean difference between students in the lowest and highest categories would be 32 points, roughly one-third of the standard deviation of mathematics scores, which was 89 points in this subsample. The press coefficient was larger, but most students were concentrated within two categories of either of the press variables, and the effect of being in the higher of these two categories, relative to the lower of them, was only about one-tenth of a standard deviation. The age coefficient was significant and negative, suggesting that either retention or late entry of slower learners have a larger impact than maturational effects.

At first glance, the estimated effects at the between-classroom level (preceded by an "M," for "mean," in all tables) appear much larger than the coefficients at the within-classroom level. However, the standard errors of the estimated between-class coefficients are generally large, and the t statistics of the between-class coefficients are on average only modestly larger than those of the within-class estimates.

Nonetheless, in the US, there are some striking differences between the within- and between-class estimates. The presence of the father in the home had a non-significant and near-zero relationship to scores within classrooms, but the percentage of fathers in the home showed a substantial relationship to classroom mean scores. On average, the estimated within-classroom effect of having the father present was less than 2 points, roughly 2 percent of a standard deviation. Classrooms in our grade 8 mathematics model sample ranged from 15 to 100 percent of fathers present. Holding other variables constant, going from one standard deviation below the mean to one standard deviation above on the scale of proportion of fathers present (from .50 to .82) would predict an increase in mean scores of about one-third of a standard deviation.

The difference in predictive power at the within- and between-classroom levels in the US becomes clearer if one compares the variance accounted for by variables at each level. In this model, 59 percent of the total variance in scores in the US was within classrooms, while the remaining 41 percent was between classrooms (Table 5). The five variables in the model predicted about 77 percent of the between-classroom variance but only 4 percent of the within-classroom variance. The predicted between-classroom variance was 2,532, while the predicted within-classroom variance was only 198. Thus, the five between-classroom variables accounted for 31 percent of the total variance of mathematics scores [2532/(3299+4769)], while the five within-classroom variables accounted for only 2 percent of the total variance.

Table 5
Total and Predicted Variance in Mathematics Scores at Each Level

	United States		France		Hong Kong		Korea	
Share of Variance	Within	Between	Between	Within	Between	Within	Between	Within
Total at level	3299	4769	1356	4232	4543	5557	799	10722
Percent at level	41	59	24	76	45	55	7	93
Predicted by variables at level	2532	198	801	191	3137	73	751	1431
Percent at level predicted by variables at level	77	4	59	5	69	1	94	13
Percent of total predicted by variables at level	31	2	19	3	31	1	7	12

One surprising finding in the multilevel model for the US was the lack of importance of mother's and father's education, which are generally considered to be among the strongest predictors of student performance in the US. Parental education did not have large enough effects to warrant keeping either variable in the model. Alternative models (for example, one in which the TIMSS parental education categories were entered as dummies) produced the same result. To explore this, we conducted additional analyses of TIMSS and the base year of the National Education Longitudinal Study (NELS-88), modifying our TIMSS model in several ways to make it as comparable as possible to the model we analyzed in NELS. This comparison suggested that several factors contributed to the unimportance of maternal education in our TIMSS model, including the use of a single classroom per school and the inclusion of the academic press variable. However, much of the difference remained unexplained and appears to be a result of unknown characteristics of the TIMSS database. When nearly identical models were analyzed in TIMSS and NELS, in both cases using schools rather than classrooms as the level 2 unit, the level 1 and level 2 parameters for maternal education were both less than half the size in TIMSS as in NELS.

None of the final models fully matched any other in terms of the variables included (Table 4). Only a single variable, academic press, appeared in the final models for all countries. The final models for Hong Kong, Korea, and the US all included variables for number books in the home, a computer in the home, and academic press. The model for Hong Kong, however, included a variable for father present in the home but excluded age, which was included in both the US and Korea. The model for Korea included age but excluded presence of a father, which was included in the other two countries. The model for Hong Kong included a variable for born in country, and the model for Korea included a variable for father's education; neither of these variables was included in the models for any other countries. The model for France was was the only model that excluded variables for the number of books or computer present and was the only one to include mother's education.

Although some of the coefficients were similar in magnitude across countries, others differed markedly. For example, the student-level (within-classroom) coefficients for press were similar in the US, France and Hong Kong: 9.6, 8.6 and 10.3, respectively. The between-classroom coefficients for this variable were 43.2, 45.0 and 47.4 for the US, France and Korea. In contrast, the between-classroom coefficient for the press variable in Hong Kong was 174.5, several times as large as the coefficients for the same variable in the other models. However, as explained below, we do not place great confidence on specific parameter estimates, and this estimate in Hong Kong may be seen as implausible.

Although the variables in the models and the effects of those variables differed across countries, the models in all countries were consistent in predicting most of the variance between classrooms but little of the variance within classrooms (Table 5). This prediction of between-classroom variance ranged from 59 percent in France to 94 percent in the Korea, and the prediction of within-classroom variance ranged from 1 percent in Hong Kong to 13 percent in Korea. The prediction of within-classroom variance in Korea, while a modest 13 percent, is several times as strong as in any other country; the next strongest prediction was 5 percent of the within-classroom variance in France.

The consistency of this strong prediction of between-classroom variance is all the more striking in the light of the sparseness of the models and the weak measurement of social background. Our models included few predictors. The variables available in TIMSS do not necessarily include those that researchers in participating countries would suggest are the most important predictors of achievement. For example, TIMSS does not include income, race/ethnicity, or inner-city location, all three of which are known to be important predictors of performance in the US. Similarly, the National Research Coordinator for Korea indicated that income, type of community (urban, suburban, rural) and geographic region are all somewhat correlated with performance in Korea (Im, 1998). In addition, the selection of variables for use in the models was constrained in some instances by problems with the data.

Thus, the variables included in the models were a potentially weak proxy for those that would best show the relationships between score variance and background variables in each country. It is possible that the use of a stronger set of predictors would have substantially increased the percentage of variance predicted at one or both levels, particularly the within-classroom level, at which our prediction was very weak. We cannot determine whether this is the case, however. In the general case, the degree of prediction may not be substantially lessened by the weakness of collinear predictors if enough of them are used in the model (e.g., Berends and Koretz, 1996).

We have less confidence in the specific parameter estimates we obtained, particularly in cases in which the estimates varied markedly among countries. There are several reasons for this caution. First, as noted earlier, parameter estimates in multi-level models are often quite sensitive to specification differences (Kreft and DeLeeuw, 1998), and our selections of variables were necessarily somewhat happenstance, constrained as they were by the limitations of the TIMSS database. Models that included additional variables (such as family income) or better-measured constructs might have yielded substantially different estimates of the parameters in our models. Second, EDA showed that some variables behaved quite differently across countries. Other operationalizations of these constructs might have altered these differences and might therefore have produced different parameter estimates.

To test the importance of the particular selections of variables in our final models, we ran a constant, minimal model in each of the four countries, including the individual and aggregate values of number of books, computer present, press, age, and age squared. This fixed model predicted almost as much of the variance in performance as did our final models, which were selected to optimize prediction in each country and subject (Table 6; compare Table 5). This suggests that predicted variability is somewhat invariant to the variables included in the model.

Table 6
Percent of Variance at Each Level Predicted by Fixed Model

	Mathematics	
	Between Classroom	Within Classroom
United States	72%	4%
France	54	4
Hong Kong	67	1
Korea	86	12

Differences in the strength of prediction across the four countries therefore may be substantively more important than differences in parameter estimates. One striking difference in prediction becomes apparent when one looks at the prediction of total variance rather than within-level variance. In the US and Hong Kong, roughly one third of the total variance is predicted by the models, in both cases largely because of variation in between-classroom predictors (Table 7). The models predict much less of the variance in France (18 percent) and Korea (19 percent).

Table 7
Percent of Total Variance Predicted by Predictors at Each Level, Final Models

	Between Classroom	Within Classroom	Both Levels
United States	31%	2%	34%
France	14	3	18
Hong Kong	31	1	32
Korea	7	12	19

NOTE: Entries may not sum to totals because of rounding.

The four countries also differ in terms of the relative predictive power of the models between the student and classroom levels. Again, the US and Hong Kong are very similar: almost all of the predicted variance in each country is attributable to between-classroom variation in the predictors (Table 7). France and Korea, however, differ in this respect, even though the percentage of total variance predicted at both levels is nearly identical in the two countries. In France, most of the predicted variance is attributable to the classroom-level predictors, and France differs from the US and Hong Kong in that the prediction is much weaker at the classroom level. In Korea, in contrast to all three other countries, more of the total prediction is due to within-classroom variation in predictors. This can be seen as a reflection of two factors. First, even though the model predicted only a modest percentage of the within-classroom variance in Korea, the predicted percentage was considerably larger than in the other three countries. Second, a larger percentage of the total variance lies within classrooms in Korea (93 percent) than in France (76 percent), the US (59 percent), or Hong Kong (55 percent). The product of these two percentages, which is the percent of total variance predicted by within-classroom predictors, is therefore much larger in Korea than in the other countries.

There are several possible non-exclusive explanations for these cross-national differences in predicted variance. First, the fixed model and our final models may be a better selection of variables for some countries than for others. Changing to a fixed set of variables drawing from the variables in our set did not have much of an impact, but it is possible that including other variables would have. Second, taking our models as a given, stronger prediction in one country than in another could stem from larger estimated effects of some variables in the model, greater variability in the predictors themselves, or both.

Stronger prediction of scores could reflect stronger partial relationships, greater variance in the predictors themselves, or both. To explore this, we partitioned the variance in the predictors themselves into within- and between classroom components. We then compared the amount of variance in the predictors to the amount of predicted variance in scores.

The greater prediction of score variance within classrooms in Korea compared to the US appears not to stem from differences in the variability of predictors. Within classrooms, all of the predictors other than age (which matters less because it is a weak predictor of scores) showed roughly similar variance in the US and Korea. This, in conjunction with the larger parameter estimates reported for Korea earlier, indicate that the stronger within-classroom prediction in Korea stems from stronger partial relationships within classrooms between background variables and scores.

The contribution of predictor variance to the difference between France and the US in the prediction of between-classroom score variance, however, is ambiguous. France shows less between-classroom variance in two predictors, number of books and computer present, and the former is a relatively powerful predictor of score variance in France. On the other hand, France shows much more between-classroom variance in age, and age is also a strong predictor of score variance.

Recall that although Hong Kong is similar to Japan and Korea in terms of its overall mean and standard deviation, it is similar to the US – and strikingly different from Japan and Korea – in terms of the decomposition of variance into within- and between-school components. Hong Kong is also very similar to the US in terms of the predictive power of the models both within and between classrooms. Hong Kong and the US are also similar in terms of the within- and between-classroom variance of the predictors themselves, with the exception of age.

Conclusions

This study was prompted in part by a widespread view that performance variance in the US is unusual. This view has sometimes been made explicit – for example, in Berliner and Biddle's assertion that "The achievement of American schools is a *lot* more variable than is student achievement from elsewhere" (1995, p. 58). In other instances, this view of variability is implicit, as when the scores for US states or districts are compared to national averages from other countries. In response, we asked whether the distribution of performance in the US is anomalous, how the variance in performance is distributed in the US and other countries, and how well background factors can predict that variation.

TIMSS suggests strongly that the variation in performance in the US is not anomalous. In Population 2, the US variance is large but not exceptional in science and more nearly average in mathematics. Contrary to some expectations, the distribution of scores is not particularly skewed in the US, and in eighth-grade mathematics, it is right- rather than left-skewed. Moreover, differences among countries in the variance of performance do not clearly follow stereotypes about their homogeneity. Socially homogeneous Japan, for example, shows a bit more variation than the US in mathematics, while socially heterogeneous France shows considerably less.

When performance variance is broken into within- and between-classroom components, however, the story becomes more complex. The US, Australia, Germany and Hong Kong show one pattern, in which nearly half of the variance lies between classrooms. Japan and Korea lie at the other extreme; most of their variance lies within classrooms, while very little lies between. The result is that classrooms in Japan and Korea resemble each other in terms of mean performance much more than do classrooms in the US, Germany, Hong Kong, and Australia. France falls between these two poles. By the same token, students in the typical classrooms in Japan and Korea show much greater variability in performance than do their counterparts in the US, Germany, Hong Kong, and Australia.

While the US is similar to many other countries in the overall variability of student performance in mathematics and is similar to several others we investigated in the decomposition of performance variation within and between classrooms, TIMSS does not fully address the reasonableness of Berliner and Biddle's (1995) assertion that US schools are far more variable than are schools elsewhere. Of the countries we considered, only the US and Australia provided samples that allow one to separate between-classroom and between-school variance. For example, if tracking is entirely absent in Japan and Korea, classrooms within schools should be randomly equivalent. In this case, much of the between-classroom variance in these countries might lie between schools – in comparison to the US and Australia, where our preliminary analysis found that most of the between-classroom variance lies within schools. However, only a sample that includes multiple classrooms per school would permit testing this hypothesis.

What do the present findings imply about the reasonableness of comparing means for US states and districts to averages for other nations? We cannot fully answer that question because the TIMSS design does not yield evidence pertaining to districts or states in the US or about similar units in other countries, such as German Länder. However, the wide dispersion of classroom means in Australia and Germany, and the smaller but still substantial dispersion of means in France, suggests that these comparisons may be misleading. Just as some states in the US compare more favorably than do others to means of other countries, some areas in those other countries are likely to score markedly better than the averages for those countries. In contrast, classrooms in Japan and Korea vary much less in average performance, so comparisons between US states and the means in Japan and Korea may be more meaningful. However, even in Korea and Japan, the standard deviations of classroom means are substantial, and the standard deviation of school means, which cannot be estimated from TIMSS, may be sizable as well.

Our analyses cannot identify causes of the cross-national differences we found, but they raise a number of intriguing possibilities that warrant further investigation. One question is what factors might underlie the patterns in Korea: little total variance between classrooms and an unusually large amount of predicted variance within classrooms.

One possible contributor to the differences between the US and Korea is stratification of students in terms of ability. This hypothesis is consistent with the differences between the US and Korea in terms of both the decomposition of variance and the ability of the models to predict the within-classroom variance. We know that Korea's policy is not to track students into classes by ability in eighth-grade mathematics (Im, 1998). If schools as well as classrooms are relatively little stratified in Korea in terms of background factors associated with student performance, then more of the relevant variance of these background variables may lie within classrooms in Korea than in France, the US, or Hong Kong. Note that the total variance in the background factors included in the fixed model is not larger within classrooms in Korea than in the US. However, more of the variance that predicts student performance may lie within classrooms in Korea. In contrast, in countries like the US, the combination of residential stratification and tracking would result in much of the relevant variance of these background variables lying between classrooms rather than within them.

However, other factors, such as instructional differences, might also contribute to the differences between Korea and the other countries examined. For example, instruction might vary less among classrooms in Korea than in Hong Kong or the US. This might help explain the lack of performance variation between classrooms. Instructional factors might also contribute to the greater within-classroom predictive power of background factors in Korea. Although many current US reform efforts aim for both higher standards and greater equity of outcomes, it is possible that all other factors being equal, a very high level of standards could increase score variance, as the more able students might be better able to take advantage of more difficult material. Curriculum differences might also correlate differently with background factors from one country to another. If curriculum differences are less highly correlated with background factors in Korea than in the US, that too could contribute to the patterns we found.

The results for Hong Kong also raise interesting questions. Four Asian countries, Singapore, Korea, Japan, and Hong Kong, ranked highest in grade 8 mathematics in TIMSS. Hong Kong is also similar to Japan and Korea, but not Singapore, in terms of its simple standard deviation of scores. Our results, however, showed that in both the decomposition and prediction of performance variation, Hong Kong is very similar to the US and strikingly different from Korea and Japan. Hong Kong is also similar to the US in terms of the decomposition of the variance of predictor variables. Further investigation of factors that might cause Hong Kong to resemble other highly developed Asian countries in some respects but the US in other respects could help avoid simplistic explanations of cross-national differences in performance.

Finally, several aspects of performance variation in France – the relatively small overall standard deviation of scores, and the small total and predicted between-classroom variance – could have important implications for policy. As noted earlier, it is not clear from our results whether lesser between-classroom variation in predictors contributed to this, but decompositions of predictor variance did not suggest that this was a major factor. Some observers maintain that the French curriculum is highly standardized, even compared to that of many other countries with national curricula. If so, that uniformity could contribute to both a smaller between-classroom variance. In addition, by weakening any correlations between curricular variables and social background, uniformity of curriculum could also lessen the prediction of score variance by background factors.

Further analysis of TIMSS data may help shed light on these questions. For example, the present analysis could be expanded to incorporate instructional and curriculum variables as well as background factors. The TIMSS data, however, will not be sufficient to address certain key aspects of these questions. They cannot provide useful data about variations in larger aggregates, including schools and states (and their equivalents). Moreover, in most countries, TIMSS collected very little information about stratification, either within or between schools. These gaps could be addressed either by modifications of future international surveys or by the use of smaller, more focused studies in selected countries.

Notes

1. A number of studies have shown that even older students often provide reports of background variables that are inconsistent with those of their parents. For example, Kaufman and Rasinski (1991) showed that only roughly 60 percent of eighth-grade students in the National Education Longitudinal Study (NELS-88) agreed with their parents about their parents' educational attainment (Kaufman and Rasinski, 1991, Table 3.2). A study of Asian and Hispanic students in NAEP found similar results for middle-school students but found that fewer than half of third-grade students agreed with their parents on this variable (Baratz-Snowden, Pollack, and Rock, 1988).
2. Note that the shape of the distributions depend on the mix of items included in the assessment. For example, it is possible that including a larger number of easy items in the assessment would have stretched the left-hand tails of these distributions, particularly the lower tail of the US distribution.
3. This is in contrast to traditional stepwise or other empirical subsets procedures, in which criteria specified *a priori*, such as F-for-inclusion, are applied algorithmically.

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Appendix A
Description of Variables

This Appendix describes the source of the principal variables used the models presented in this report.

Name	TIMSS name	Notes
Math score	BIMATSCR	
Father present	BSBGADU2	
Age	BSDAGE	
Books in home	BSBGBOOK	Sometimes entered as a single variable, if test of linearity warranted.
Computer in home	BSBGPS02	
Press	composite	Mean of BSBMSIP2 and BSBMMIP2 when both were present; either variable if only one present
Mother's education	BSBGEDUM	Sometimes recoded as noted in text; sometimes entered as a single variable, if test of linearity warranted
Father's education	BSBGEDUF	Sometimes recoded as noted in text; sometimes entered as a single variable, if test of linearity warranted
Born in country	BSBGBRN1	

Appendix B
Confidence Limits for Parameter Estimates
Two-level Models

Parameter estimates are the same as those reported in the body of the article. Jackknifed estimates of lower and upper 95 percent confidence limits are in parentheses under each parameter estimate.

Variable	United States	France	Hong Kong	Korea
Intercept	-351.7	592.6	-424.8	27.9
	(-884.9, 181.5)	(289.8, 895.4)	(-708.6, -141.0)	(-660.5, 716.3)
Within class (b)				
Number books	7.9**		0.3	20.2**
	(5.6, 10.3)		(-2.0, 2.7)	(16.7, 23.7)
Computer present	4.4		-3.8	10.9**
	(-2.7, 11.4)		(-10.0, 2.5)	(3.2, 18.7)
Father present	1.7	8.9*	-7.4	
	(-4.9, 8.3)	(0.9, 17.0)	(-19.7, 5.0)	
Mother's education		4.6		
		(1.2, 8.0)		
Father's education				9.5**
				(5.5, 13.5)
Press	9.6**	8.6*	10.3**	36.2**
	(4.4, 14.7)	(0.5, 16.7)	(4.6, 16.0)	(27.9, 44.5)
Age	-14.4**	-18.2**		-6.0
	(-21.1, -7.7)	(-24.6, 11.7)		(-18.4, 6.4)
Age^2	-6.9	-0.6		-14.8**
	(-14.2, 0.5)	(-6.0, 4.7)		(-26.0, -3.7)
Born in Country			-19.1**	
			(-30.1, -8.2)	
Between-class (c)				
M Books	45.5**		44.1**	16.2*
	(30.7, 60.2)		(11.7, 76.6)	(1.7, 30.7)
M Computer	37.2*		89.8*	44.5**
	(3.6, 70.9)		(5.4, 174.1)	(12.5, 76.4)
M Father present	90.3**	59.5**	326.9**	
	(47.4, 133.2)	(14.0, 104.9)	(151.8, 502.1)	
M Mother's education		26.4**		
		(16.2, 36.7)		
M Father's Education				18.8**

				(7.7, 30.0)
M Press	43.2**	45.0**	174.5**	47.4**
	(9.0, 77.4)	(14.3, 75.5)	(103.5, 245.4)	(13.1, 81.7)
M Age	33.9	-23.0*		20.5
	(3.2, 64.6)	(-43.1, -2.8)		(-27.6, 68.5)
M Age^2	-149.4	-23.3		-26.2*
	(-223.8, -75.0)	(-54.7, 8.0)		(-50.0, -2.4)
M Born in Country			-44.7	
			(-119.9, 30.4)	
Residual variances				
r^2 (within)	4570.4	4040.8	5485.0	9290.6
t (between)	766.2	554.7	1406.2	48.0

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La Formación Profesional en España y Alemania: El patrón de cooperación como garantía en la política de administración y gestión educativa

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Resumen
El presente artículo analiza cómo el patrón de cooperación sobre el nivel educativo de Formación Profesional entre diferentes instancias asegura una Formación Profesional de calidad en la medida en que se produce un reparto de competencias efectivo y regulado. Para este análisis, se aplica la metodología comparada de García Garrido sobre el modelo español y alemán de Formación Profesional y se revisan tópicos educativos dentro de cada uno de los dos sistemas educativos de Formación Profesional relacionados con la administración, gestión y supervisión del sistema en ambos países tanto en el nivel central como en el regional.

Abstract
This article analyzes how the patterns of cooperation among different institutions ensure quality professional preparation in terms of the production of an effective and regulated distribution of competencies. For this analysis we apply the comparative methodology of García Garrido to the Spanish and German models of professional development; and we review educational issues related to the administration, management, and supervision of the professional preparation system in the two countries both at the central and regional levels.

Introducción

El estudio de la Formación Profesional (a partir de ahora, FP) resulta siempre complejo, en buena medida porque se sigue considerando un nivel educativo extremadamente heterogéneo, al concebirse como una especie de bisagra que une el sistema educativo y la empresa. Estas características le confieren singularidad a la vez que gran autonomía como tramo educativo, configurándose de manera diferente en función del país en que ésta se sitúe. En efecto existen fuertes condicionamientos en función de las diferentes prioridades políticas y educativas de los países desde los que se planifica, gestiona y pone en marcha la FP, puesto que mientras que algunos defienden la consolidación de los sistemas FP reglada, otros prefieren fortalecer la formación continua de los trabajadores, y otros más los cauces post-obligatorios y aún los ocupacionales.

En íntima conexión con el modo de comprender y asumir la orientación que los sistemas de FP poseen en un determinado país, el estudioso de la educación se encuentra con la necesidad de analizar la política educativa que rodea a la supervisión, gestión y administración de la FP, puesto que en éstas hallará la justificación de buena parte de las decisiones que en esta materia se planifican y llevan a cabo.

A partir de un análisis así entendido, la FP en el ámbito europeo se articula a través del reparto de responsabilidades entre los interlocutores sociales implicados en este nivel educativo, y desde el ámbito local hasta el central: gobiernos y ministerios, patronales (en representación a la empresa), cámaras profesionales y sindicatos.

De una forma más concreta, una de las claves sobre las que se pretende reflexionar e incidir estratégicamente en este artículo consiste en que el patrón de cooperación entre las diferentes instancias en la FP española asegura una FP de calidad en la medida en que se produce un reparto de competencias efectivo y regulado, como ocurre en el modelo alemán. Dicho de otro modo, se piensa que la cooperación es una de las premisas que mejor se adapta al modelo de política educativa existente tanto en España como en Alemania, al aplicarse a la realidad autonómica y, al mismo tiempo, predicarse hoy en los modelos federales, ya que, como señala Puelles, "implica una decisión generalizable a todas aquellas materias que, como la educación, son objeto constitucionalmente de una competencia compartida"[1].

Para conseguir los objetivos marcados, se aplicará sobre los contenidos una metodología comparada, a fin de poder comparar cuál es el estado de la cuestión establecido en torno a dos países elegidos como objeto de estudio: España, por un lado, y Alemania, por otro, a través de un método que se adapta a su vez a la metodología comparativa de García Garrido[2]. La metodología consiste en la descripción explicativa de los datos correspondientes a las unidades de comparación; la yuxtaposición de datos (mediante unas tablas comparativas), a través de la cual podrán perfilarse cuáles son las semejanzas y las diferencias establecidas en torno a las categorías que se habrán prefijado, para desembocar, finalmente, en unas conclusiones acerca de los resultados encontrados.

En el transcurso de las próximas páginas, por tanto, se profundizará sobre los elementos de los que depende dicha cooperación, a la vez que se incidirá en la organización política de ambos países. Interesa, igualmente, insistir en cuáles son los aspectos que separan a la política educativa de España de la llevada a cabo sobre Alemania, para poder extraer una serie de conclusiones valiosas, fruto del análisis comparado.

1. Revisión del marco teórico. La administración, gestión y supervisión del sistema FP en España y Alemania.

A continuación se revisarán los contenidos de los modelos de FP correspondientes a cada uno de los países objeto de estudio. Se comenzará con la exposición de España a la que seguirá el modelo alemán.

1.1. Administración, gestión y supervisión del sistema de FP en España

a) Constitución española y administración educativa.

La Constitución de 1978 contiene todas las directrices básicas de la legislación en el área concreta de educación. En ella se reconoce a la educación como uno de los derechos fundamentales que el Estado debe garantizar, y también recoge otros derechos básicos referidos a la educación y a las tareas que, en materia educativa, corresponde al Gobierno Central y las Comunidades Autónomas (CC.AA).

La Constitución establece la distribución de responsabilidades entre el Estado y las Comunidades Autónomas en las que el país está dividido. En materia de enseñanza (educación preescolar, primaria y secundaria, FP reglada y enseñanza superior), la Constitución estipula una serie de ámbitos sobre los que el Estado tiene competencias exclusivas y otros en los que las Comunidades Autónomas pueden asumir responsabilidades. Existen actualmente siete de las diecisiete Comunidades Autónomas en esta situación, y se prevé que todas ellas se vayan haciendo cargo de dichas competencias de forma gradual, lo que llevará como consecuencia el hecho de que el sistema educativo español está gestionado por diecisiete administraciones bajo la coordinación del Ministerio de Educación y Ciencia (MEC)[3]. Aquellas Comunidades Autónomas que todavía no han asumido competencias plenas están desarrollando de forma progresiva nuevas actividades educativas mediante acuerdos de colaboración con el MEC.

La Constitución concede a la administración central del Estado una competencia exclusiva en los siguientes ámbitos de la educación, y por lo tanto también en lo que a FP reglada se refiere. Así, puede afirmarse que, administrativamente, el Estado, éste tiene competencias en varios aspectos: entre los más importantes, destacan la regulación y puesta en práctica de las condiciones básicas que atañen al principio fundamental del derecho a la educación, establecimiento de la normativa general del sistema educativo (duración de periodos, niveles, ciclos, grados, niveles, materias de especialización, requisitos de los exámenes, etc.); y la programación de la enseñanza[4].

La única administración educativa central con competencias de nivel nacional es el Ministerio de Educación y Ciencia (MEC) que coordinará las actividades con las realizadas por las administraciones educativas autonómicas[5]. Dentro de esta institución, dirigida por un Ministro que es a su vez asistido por otros organismos directivos, en el MEC se distinguen varios suborganismos, entre los cuales destaca la Secretaría de Estado en Educación, que incluye a diferentes Direcciones Generales: las Direcciones Generales de Renovación Pedagógica, de Centros Escolares, de FP Reglada y Promoción Educativa.

El Ministerio de Educación y Ciencia es considerado por De Puelles Benítez como una organización `híbrida´, ya que "por un lado va a ser el organismo gestor con respecto a las Comunidades Autónomas que no accedieron a la plena competencia; por otro, ha asumido con dinamismo las funciones autonómicas (aunque no todas al mismo nivel) y, finalmente ha acometido una profunda reforma del sistema educativo, lo cual ha conllevado inevitablemente una considerable carga de gestión"[6].

La administración educativa ha sufrido, desde la promulgación de la Constitución hasta el momento presente, considerables transformaciones para ajustarse a la descentralización administrativa del Estado[7]. En el plano autonómico, ya se ha señalado que es necesario distinguir entre aquellas Comunidades Autónomas que hayan asumido plenas competencias en materia educativa y aquellas que continúan siendo gestionadas por el MEC[8]. En este caso, las primeras contarán con sus propias estructuras administrativas que se corresponden en principio con la organización de la administración central de la enseñanza y de la FP. Conviene destacar el hecho de que todas las Comunidades Autónomas cuentan con un departamento de Educación (la Consejería de Educación), si bien éstos varían en dimensión e importancia, en función de la comunidad y su disposición o no de plenos poderes en materia educativa.

De entre las competencias fundamentales de las Comunidades Autónomas, que inciden en la FP reglada, considerada ésta como nivel educativo, ha de destacarse la elaboración y aprobación de planes, programas de estudio y orientaciones pedagógicas que complementen las enseñanzas mínimas fijadas por el Estado.

Pero la dinámica de la descentralización no se agota en las Comunidades Autónomas: existe además un tercer nivel de competencia, el correspondiente a la administración local, aunque apenas tiene responsabilidades en educación, tan sólo de carácter muy restrictivo en la educación preescolar y básica, y ninguna incidencia en la FP[9].

Con respecto al nivel concreto de FP, las responsabilidades son compartidas entre dos instancias: por un lado, y en primer lugar, la FP corresponde en un alto grado al mundo laboral, y se ejerce legalmente a través de los interlocutores sociales y los consiguientes acuerdos con el Estado, aspecto éste que garantizará la legalidad, los niveles en que se imparte, las condiciones mínimas y la supervisión de las competencias a las administraciones periféricas. En segundo lugar, recae sobre el Ministerio de Educación y Ciencia y es en su desarrollo formal cuando se fomenta la participación y colaboración con las empresas (aunque quede resguardada por una sólida financiación pública[10]). De este modo, se está demostrando que, en materia educativa en general, y en FP en particular, el principio básico que ha de presidir la articulación de un sistema concebido desde las autonomías es precisamente el correspondiente a la cooperación.

De todo lo anterior, puede deducirse que nos encontramos ante una descentralización administrativa prácticamente total, y una considerable descentralización política. Esta característica es la que permite compararnos al modelo de administración alemán. Sin embargo, el sistema de administración educativo español se halla más propiamente en el punto medio entre un sistema federal y uno regional. En efecto, las competencias que la Constitución, los Estatutos de Autonomía y las leyes orgánicas de educación que asignan al Estado son importantes desde el punto de vista del poder de decisión (competencias, que, como ya se ha señalado, recaen sobre la ordenación general del sistema educativo, las enseñanzas mínimas que integran el curriculo, etc.) Estas competencias son competencias substanciales, que alejan al sistema español del modelo federal donde el poder federal, la Federación, apenas tiene competencias en materia educativa.

b) Participación social en FP española.

El proceso de descentralización de responsabilidades no constituye una mera redistribución de poderes entre los diferentes niveles administrativos, sino que también supone y a su vez se alimenta de una fuerte participación social. Los organismos consultivos de nivel nacional responsables de garantizar dicha participación social son el Consejo Escolar del Estado, y el Consejo General de la Formación Profesional.

Con relación al primero, el Consejo Escolar de Estado, este órgano participativo se compone de ochenta miembros, incluyendo las organizaciones patronales y las centrales sindicales. Tiene competencias consultivas en relación con la legislación, su reglamentación, la programación general de enseñanza y la emisión de los informes pertinentes. Existe, además, un Consejo Escolar en cada Comunidad Autónoma, en el ámbito provincial y en el ámbito comarcal, con representación de los agentes sociales.

Con respecto al último de éstos, el Consejo General de la Formación

Profesional[11], éste cumple una función primordial, tal y como es el asesoramiento al Gobierno sobre cuestiones relativas tanto a la FP reglada como a la formación ocupacional[12], así como a la orientación profesional. También es el encargado de diseñar y realizar un seguimiento de la aplicación del Programa Nacional de Formación Profesional. Sus miembros han de representar a partes iguales a los agentes sociales y a los Ministerios de Trabajo y Seguridad Social.

A los dos organismos anteriores hay que unir un tercero, la Conferencia de Educación[13]: La `Conferencia de Consejeros Titulares de Educación de los Consejos de Gobierno de las Comunidades Autónomas y el Ministerio de Educación y Ciencia´ es el largo título que queda resumido con el término anterior. Esta Conferencia tiene su origen en la LODE, surgiendo en 1985 con tres funciones muy específicas: la programación general de la enseñanza (siendo una competencia compartida), la coordinación de la política educativa y el intercambio de información.

Como ocurre con el modelo federal alemán, los Acuerdos de la Conferencia Permanente de Educación, aun gozando de unanimidad, carecen de fuerza jurídica de obligar y requieren de las autoridades estatales y autonómicas en el ámbito respectivo de sus propias competencias, el uso de poderes normativos y de ejecución para poner en práctica las decisiones tomadas previamente por la misma.

La Conferencia actúa como máxima instancia de decisión, indicando con ello su carácter de auténtico órgano de cooperación en la línea de los modernos modelos federales de asociación. Sin embargo, el hecho de que diez años después de su nacimiento no se haya regulado este organismo indica que posiblemente necesite un mayor impulso de cara a abordar nuevas fases de la educación y a fin de poder conseguir una mayor complejidad y desarrollo.

1.2 Administración, gestión y supervisión del sistema de FP en Alemania

a) Principios fundamentales y bases legales del sistema de FP alemán.

La República Federal Alemana es una república democrática, federal y constitucional y un Estado responsable, estando a su vez formado por 16 *Lnder* (Estados)[14] que cuentan con su propia Constitución y gobierno.

La Constitución de la República Federal alemana, conocida como *Grundgesetz* o Ley Fundamental, fue adoptada en 1949 para conformar un nuevo sistema político basado en la libertad y en la democracia, y modificada tras la caída del Muro de Berlín, siendo objeto de una reforma en septiembre de 1990, con motivo de la firma del Tratado sobre el restablecimiento de la unidad alemana. En su Preámbulo puede leerse que los alemanes están llamados a "conseguir en libre auto-determinación la unidad y libertad de Alemania"[15]. La Ley Fundamental establece, así, que la República Federal alemana es un Estado federal democrático y social, de modo que el ejercicio de los poderes gubernamentales se divide entre la Federación y los *Lüder*. A un nivel federal, las funciones ejecutivas son responsabilidad del Gobierno Federal. En cada *Lüder*, la autoridad soberana corresponde a cada uno de los gobiernos y parlamentos del *Land*.

b) Federalismo en la administración, gestión y supervisión de la FP

En la República Federal de Alemania la responsabilidad con respecto al terreno educativo está determinada y condicionada por la estructura federal del Estado. Así, tal y como señala el Instituto de Investigación Max Planck, una de las peculiaridades dominantes del sistema educativo alemán es su muy temprana y marcada estatalidad, situando a este país equilibrada y proporcionalmente entre la tradición anglosajona y la francesa: la primera con un enorme influjo por parte de las iniciativas locales, y la última con una uniformidad y consistencia calificada incluso de “monolítica”[16]. Este rasgo, fundamental, es el que permite definir su `federalismo´ u organización federal, definiéndose desde el equilibrio en la administración y gestión de la educación alemana.

El gobierno federal está conformado por un total de 16 Ministerios federales, coordinados por el Canciller federal, figura política que goza de una posición autónoma con respecto a los anteriores. La función de éste último queda resumida en “su poder para determinar las líneas directrices de la política general”, tal y como recoge el artículo 65 de la Ley Fundamental[17], siendo por tanto el responsable directo ante las mismas. Con respecto al gobierno federal y a los ministerios federales, éste primero posee competencias educativas desde el Ministerio Federal de Educación y Ciencia, Investigación y Tecnología al constituirse en responsable de la política, coordinación y legislación con respecto a la FP establecida fuera del ámbito escolar[18], así como de la formación continua, junto a otras competencias educativas, en otros ámbitos: la asistencia profesional, los principios generales que rigen al sistema de educación superior, así como la expansión y construcción de instituciones de este último tramo educativo[19]. A este respecto, el tópico de la educación no es exclusivo compromiso del Ministerio de Educación y Ciencia, sino que ha de ser necesariamente compartido con otros ministerios, al comprender algunas temáticas cuya competencia es incumbencia y por tanto responsabilidad directa de los mismos[20].

De forma específica, las responsabilidades del gobierno federal sobre el campo de la educación también quedan definidas a partir de la Ley Fundamental, según la cual la Federación acarreará particularmente la responsabilidad sobre las regulaciones en diferentes campos de educación, ciencia e investigación. De entre las más significativas para nuestro actual objeto de estudio, destacan[21]: la FP en la empresa y la FP continua, la responsabilidad sobre el marco que rige los principios generales de la Educación Superior, las regulaciones para entrar a profesiones legales, así como las medidas de promoción de empleo, además de la investigación ocupacional y del mercado de trabajo.

La Federación, respecto a la FP, se responsabilizará de la reglamentación profesional básica y superior que se realiza en las empresas, dentro del marco de la legislación económica laboral, a partir de la cual los *Lüder* definirán y desarrollarán las disposiciones pertinentes en función de sus propia necesidades[22]. Dicho de otro modo, la FP en empresas y la FP de carácter escolar se encuentran bajo diferentes jurisdicciones. El Gobierno Federal es el responsable de determinar la normativa relativa a la FP en las empresas, pero son los *Lüder* los que establecen a su vez los diferentes planes de FP[23].

Dentro del primer nivel, el Gobierno federal delega en el Ministerio Federal de Educación, Ciencia, Investigación y Tecnología (BMBF) las áreas de responsabilidad de la Federación. Éste se halla organizado en siete Directorados Generales, uno de los cuales, el Directorado General 2, bajo el epígrafe de `Educación general y FP´, se responsabiliza de nuestro actual objeto de estudio. El Ministerio Federal de Educación, Ciencia, Investigación y Tecnología ejercerá las funciones de legislación, de control y de coordinación global, según lo estipulado en la Ley de Formación Profesional de 1969 (*Berufbildungesetz*). Otras funciones son las relacionadas con: el establecimiento de la competencia en lo concerniente a las cuestiones fundamentales de la política de formación, a la elaboración de los Reglamentos de Formación (*Ausbildungsordnungen*) para el aprendizaje en la empresa, a la adopción de reglamentaciones relativas a la cualificación pedagógica de los formadores, al Instituto Federal de Formación Profesional y a la elaboración del Informe anual sobre FP (*Berufsbildungsbericht*), entre otras.

A su vez, cada uno de los Ministros de Educación y Asuntos Culturales de los *Lüder* adopta provisiones legales y regulaciones administrativas, en los campos que son de su competencia, cooperando con las autoridades en cada *Lüder* y supervisando además el trabajo de las autoridades, de los fondos y de las instituciones bajo su tutela y a través de cuerpos subordinados. Para llevar a cabo estas funciones se han creado a tal efecto sus propios institutos de investigación sobre la educación en general, y sobre la enseñanza superior y continua, en particular. Los Ministerios de Educación y Asuntos Culturales de los *Lüder*son, por tanto, las principales autoridades en lo que se refiere a la supervisión y administración de los centros que imparten la enseñanza general y la FP.

La autoridad de los *Lüder* no sólo abarca la organización de los centros escolares, el contenido de los estudios y los objetivos de la enseñanza, sino también la supervisión del rendimiento de los profesores y de todo el resto del personal docente. Los objetivos educativos establecidos por la legislación educativa se materializan en los planes de estudio para las diferentes materias impartidas en los niveles de enseñanza, que son responsabilidad de los Ministerios de Educación y de Asuntos Culturales de los *Lüder*.

A este nivel es donde se ejerce, en la práctica, el control real de la aplicación de los Reglamentos de Formación (que han sido elaborados de manera concertada en el seno de comisiones pluripartitas), la habilitación y el control de las empresas, la organización de la necesaria cooperación entre los representantes del mundo profesional (Cámaras, empresarios y sindicatos) y los representantes del sistema educativo (en el nivel de cada *Lüder*); y la organización de la alternancia para los diferentes sectores de la económica regional.

c) Colaboración entre Federación y *Läder*. Papel estratégico de los interlocutores sociales

Además de establecer la división de responsabilidades descrita anteriormente, la Constitución Federal también estipula mecanismos de cooperación entre la Federación y los *Läder*, como actividad conjunta desarrollada en la construcción y expansión de los centros de enseñanza superior.

En Alemania el diálogo social constituye uno de los fundamentos del sistema sociopolítico, aunque las relaciones convencionales sólo están institucionalizadas en función de los diferentes sectores profesionales existentes[24]. En general, la cooperación de los interlocutores sociales variará mucho, en función de los distintos sistemas educativos que sean objeto de estudio y análisis. En el caso de Alemania, en el que la FP está integrada en el sistema de trabajo, "los interlocutores sociales tienen más posibilidades de representar sus intereses"[25]. De este modo, la funcionalidad de este sistema dependerá en buena medida de que los grupos sociales representados defiendan `responsablemente´ sus miras y objetivos. La cooperación y acuerdo entre todos los que se hallan envueltos en la planificación de las políticas de FP se basan en una estructura de instituciones, relativamente diferenciada, aunque lo suficientemente estable.

La distribución de competencias y de las estructuras de toma de decisiones del sistema de FP alemana resulta ser, así, altamente compleja. Ello es debido a que el Estado (el gobierno federal, los *Läder*y los cuerpos regionales públicos, en torno a comités), las Cámaras, las asociaciones de empresarios y los Sindicatos son conjuntamente responsables de que la FP tenga lugar en unos parámetros de calidad, encontrándose con las demandas cuantitativas y cualitativas que la sociedad y la economía le están exigiendo. De este modo, la estructura de cooperación entre las agencias públicas que trabajan en la política de FP en el nivel central, regional y local acaban igualmente caracterizándose por su federalismo, como resultado de una mixtura de las competencias regulatorias centralizadas y descentralizadas. Esta organización federalista es la que conduce a la diferenciación, como ya se ha visto, entre las competencias del gobierno federal, y las correspondientes a los *Läder*.

El Instituto Federal de Formación Profesional (*Bundesinsittut fü Berufsbildung* -BIBB), establecido a partir de las directrices de la Ley de Promoción de la Formación Profesional (*Berufsbildungsfölderungsgestez*BerBiFG) de 1981, es en la actualidad el instrumento más eficaz de cooperación entre los empresarios, los Sindicatos, la Federación y el *Läder*, en el plano nacional. La Ley de Promoción de Formación Profesional define cuáles serán sus funciones y responsabilidades. Entre ellas, se destacan[26]: Aconsejar al Gobierno Federal en cuestiones relacionadas con FP; llevar a cabo investigaciones bajo programas pre-definidos; mantener y publicar las listas de las ocupaciones reconocidas que requieren FP formal (*Anerkanne ausbildungsberufe*); monitorizar y conceder licencias a los cursos de FP a distancia, así como animar al desarrollo de esta modalidad de aprendizaje a través de la investigación constante y la provisión de consejos y recomendaciones[27]; asistir a la preparación de las regulaciones para la formación, bajo las instrucciones del gobierno Federal (*Ausbildungsordnungeb*); compilar un informe sobre el estado de la cuestión en el momento presente con respecto a la FP (*Berufsbildungsbericht*)[28]; contribuir a la innovación con la propuesta de nuevos proyectos-piloto[29], y, bajo las provisiones generales administrativas del Gobierno Federal, dar soporte institucional y recomendaciones para la planificación, establecimiento y desarrollo de la FP en las empresas.

Debido en buena parte a su composición (una representación igualitaria del gobierno federal, de los gobiernos de los *Läder*y del abanico de organizaciones de empresarios y sindicatos, que cristaliza en la igualdad establecida sobre el número de votos), el espíritu que guíaal Instituto Federal de Formación Profesional tratade limar las diferencias que van surgiendo en el transcurso del desarrollo y avance de la FP que se suceden a nivel tanto sectorial como regional. De hecho, aunque el BIBB es oficialmente el único responsable de la formación ofrecida por la empresa dentro del sistema dual, permite también la `intromisión´ del gobierno federal, de los *Läder* y de los interlocutores sociales, a fin de poder intercambiar puntos de vista acerca de las cuestiones básicas que rigen la política de FP[30].

Por su parte, los *Läder* materializarán el control ejercido sobre la educación y la cultura con la creación de estructuras políticas de cooperación y coordinación en materia educativa, tal y como son las Conferencias Permanentes de Ministros de Educación y Asuntos Culturales (*Städ̈ige Konferenz der Kultusminister der Läder in der Bundesrepublik Deutschland*, KMK), de carácter suprarregional, con la finalidad de lograr posturas conjuntas y de solucionar los asuntos educativos y culturales de interés común[31]. La primera se estableció en 1948, y desde aquel momento, la Conferencia de Ministros se ha convertido en un foro continuo de debate y toma de postura en áreas de educación, de formación, de educación superior e investigación, además de aspectos directamente relacionados con la cultura. Las Conferencias de Ministros han tenido que acatar momentos y decisiones muy conflictivas, incluso en los años que marcaron a la post-guerra. Con respecto a la FP, la Conferencia resulta también, y en este caso de un modo especial, un instrumento para la cooperación con la Federación, basada en el partnenariado[32].

Tampoco ha de olvidarse el papel que cumplen los diferentes comités regionales que se establecen en cada *Läder*, cuya misión se resume en recomendar a los gobiernos de los *Läder* respecto a los intereses concentrados sobre la FP. De este modo, los citados comités habrán de "unir la cooperación entre la formación basada en la escuela y la formación provista de acuerdo con la Ley, y tratar de asegurar que dicha integración es necesaria por la reorganización y la expansión del sistema educativo"[33].

2. Yuxtaposición de datos. Tablas comparativas

Tras haber repasado el estado de la cuestión de España y Alemania en materia de administración, gestión y supervisión de la FP se abordará, a continuación, y tal y como se indica según el método comparado que se ha decidido aplicar para el presente estudio, la yuxtaposición de datos. A su vez, para facilitar su estudio, el análisis del tópico anterior se estructura en torno a dos grandes núcleos: los principios básicos que se derivan de las respectivas Constituciones de ambos países, y la revisión realizada en torno a los órganos gubernamentales para la administración, gestión y supervisión del sistema de FP. Éste último vuelve a dividirse en función de las funciones y tareas que son competencia de tres instancias educativas: los órganos centrales, los órganos regionales y las instituciones de cooperación central y regional.

Tabla 1
Administración, gestión y supervisión del sistema
de FP en España y Alemania

Principios básicos (Constitución)

Semejanzas

- Referencia al principio de descentralización educativa.
- Presencia de organismos descentralizados en los documentos básicos para la educación.
- Cooperación entre el nivel central y los niveles más descentralizados.

Diferencias

- Leyes con una duración diferente.
- Diferencias en las competencias educativas exclusivas del Estado.
  Diferencias en las competencias educativas compartidas.

España	Alemania
Ley básica más reciente	Ley más tradicional
Competencias exclusivas del Estado: regulación de los títulos profesionales	Competencias exclusivas del Estado: regulación en la formación en la empresa y la formación continua. Orientaciones y regulación de profesiones legales
Competencias compartidas en materia de cultura, investigación y lengua propia.	Competencias compartidas en convenios de enseñanza y proyectos de investigación suprarregionales

2.1. Principios básicos (Constitución)

La descentralización es un principio político en ambos países con claras repercusiones educativas. En las Constituciones respectivas (*Grundgesetz* o Ley Fundamental alemana y Constitución Española), las competencias que se establecen entre los poderes centrales y regionales son muy similares entre sí.

El peso de la tradición en la Constitución alemana con respecto a la española, más reciente, se muestra como un aspecto cuanto menos llamativo, que debe ser tenido en cuenta. La primera corresponde a

1949, y apenas había sufrido cambios con relación a su antecesora, la Constitución de Weimar (1914)[34]. En 1990 la Constitución alemana hubo de cambiar, ante la reciente adhesión de nuevos *Länder* y la consideración de nuevos elementos que han de ser modificados, actualizados y presentados en una Ley cada vez más globalizadora que se aplica sobre la nueva realidad.

España, por su parte, cuenta con una Constitución mucho más reciente, fruto de los nuevos aires de democratización que comenzaron a apreciarse en este país a finales de la década de los años setenta. La democratización encuentra en la descentralización educativa uno de sus mayores aliados, tal y como se desprende de la lectura de los artículos más vinculados con la FP[35]: el artículo 2do. (que garantiza la autonomía de las nacionalidades y regiones) y el artículo 148 (competencias que pueden asumir las Comunidades Autónomas).

De la selección realizada de los artículos de ambas constituciones, cabe reconocer una división, manteniendo con ello una doble intencionalidad: por un lado, el articulado que hace referencia al carácter o naturaleza política que sirve a su vez de basamento para la promulgación de cuantos principios políticos (y en este caso, educativos) se establezcan en el país; y por otro lado, los preceptos que se relacionan de forma más estrecha con el campo de la FP, aunque algunos sean abordados más directamente que otros.

El espíritu de la primera intencionalidad queda recogido en el artículo 2do. de la Constitución española y el Artículo 1ro. de la Ley Fundamental alemana: mientras el primero está justificando la existencia de una nación dentro de la cual existen regiones autonómicas, el segundo se remite a su composición federal, bajo el trasfondo de los principios democráticos en los que se sustenta.

El articulado que se refiere en ambos casos a la FP es reducido, aunque muy revelador de las semejanzas y diferencias de los respectivos sistemas.

Para el caso español, lo anterior supone, en primer lugar, "garantizar el fomento de una política que legitime la formación y la readaptación profesional"[36]. Pero hay más medidas, y éstas se concentran en torno al reparto de competencias entre el Estado y el ámbito regional: a éste último se le delega el establecimiento de las competencias que se concentran en las Comunidades Autónomas (entre las que se encuentra 'el ámbito de la cultura, de la investigación y de la enseñanza de la lengua')[37], en tanto que, en materia profesional, el Estado mantendrá la competencia exclusiva en la regulación de las condiciones que rodean a la obtención, expedición y homologación de títulos profesionales[38].

Para el caso alemán, se repite en cierto modo el esquema que se ha podido comprobar en el modelo español, puesto que vuelve a traducirse el reparto de competencias educativas en general (con alguna referencia directa a la FP). No obstante, se reconoce además un artículo específico en el que se habla explícitamente de dicha cooperación: éste es el artículo 91, en el que se expone que existirá una cooperación entre la Federación y los diferentes *Länder* en materia de enseñanza e investigación, siempre que éstos posean un carácter suprarregional[39].

Añadido al anterior, dos artículos más vuelven a incidir en lo que ya se ha adelantado: mientras el artículo 50 remite al lector a la participación de los *Länder* en la legislación y Administración de la Federación[40]; el artículo 63 se centra en el papel de la Federación, y entre sus funciones se encuentra una, muy específica, relativa a la FP, relacionada ésta con las responsabilidades que se ejercen sobre la FP en la empresa y la formación continua, así como las regulaciones ocupacionales para entrar a profesiones legales vigentes, sin olvidar la orientación profesional[41].

Ahora bien, y de acuerdo a lo expuesto hasta el momento, el reparto de competencias educativas entre las instancias centrales y los diferentes niveles de descentralización que se han estipulado para cumplimentar funciones, en este caso, educativas, si bien se aplica de forma equilibrada sobre todos los niveles educativos en España (es decir, las funciones más generales a un nivel más central y las más específicas a un nivel más regional), en Alemania dicho reparto se realiza de manera diferente en función del nivel educativo de que se trate, tal y como ya se desprende de la Constitución y se completa en las diferentes Leyes educativas que tienen como objeto de estudio e identificación la FP y que serán analizadas en el siguiente apartado.

Por lo tanto, una conclusión a la que se puede llegar y que comparten en cierto modo ambos países es que la FP, así, resulta ser un nivel educativo y formativo que se justifica desde el reparto de competencias entre diferentes instancias. Ahora bien, partiendo de este principio, común a ambos países, habrá que admitir la variante que se produce en Alemania, y es que ese reparto no es proporcional, como ocurre en España, en la que se entiende a la FP como una unidad integrada, de modo que las competencias se descentralizan y alcanzan mayores índices de concreción al llegar a instancias regionales. En el primer país, al contrario, tiene lugar una división `salomónica´, fruto de la bifurcación que sólo puede ser posible desde la consolidación de las dos formas de ver y comprender la FP: la Federación se responsabilizará de la parte relacionada con la parte empresarial, en tanto que los *Länder* lo aplicarán sobre la parte escolar[42].

Tabla 2
Organos centrales para la administración, gestión y supervisión de la educación en España y Alemania

Organos centrales
Semejanzas
El gobierno constituye una figura central en la organización central de la FP. El Gobierno delega en el Ministerio de Educación la responsabilidad y sus funciones administrativas y ejecutoras en materia profesional. Existen funciones comunes que se relacionan directamente con los principios básicos legislativos. Funciones de regulación. Existe también cooperación con otros Ministerios.
Diferencias
Tipología de gobierno que se ha erigido

Organización interna del Ministerio de Educación
Diferencias en el ámbito de regulación de FP.
Diferencias en los campos de competencias del Ministerio de Educación.
Número de Ministerios implicados.

ESPAÑA	ALEMANIA
Gobierno central.	Gobierno Federal.
Secretaría de Estado y Dirección General de Formación Profesional Reglada y Promoción Educativa.	Directorado General 2: Educación General y Formación Profesional.
Regulación de Títulos de Formación Profesional.	Regulación de Títulos y Contrato de aprendizaje.
Sobre el ámbito de Formación Profesional reglada.	Sobre el ámbito de la Formación Profesional Continua y la formación en la empresa.
Intervención conjunta con el Ministerio de Trabajo.	Intervención con el Ministerio Federal de Trabajo y Asuntos Sociales, Ministerio Federal de Asuntos Familiares y Ancianos, Mujeres y Jóvenes.

2.2. Órganos centrales

El Estado mantiene competencias exclusivas sobre la FP, pero en diferentes ámbitos dentro de la misma. Las competencias estatales están abarcando más modalidades de FP en Alemania que en España, al incidir la primera también sobre la FP continua y la FP de la empresa. Va a existir un firme propósito por parte del gobierno federal (delegando éste su poder en el Ministerio Federal de Educación y Ciencia, Investigación y Tecnología [BMBF]) de legislar, controlar y organizar la educación en sus aspectos generales, incidiendo, por ejemplo, en los Fundamentos legales que justifican la dinámica actual establecida en torno a la Formación Profesional; pero también se concentra sobre el resto de modalidades de FP: las regulaciones profesionales, los contratos de Aprendizaje (dentro del sistema dual, opción mayoritariamente elegida en Alemania), la reglamentación de la FP básica y superior realizada en las empresas, la Formación Continua y las funciones que se relacionan de forma estrecha con la supervisión, la planificación y la financiación de la enseñanza de las escuelas de FP.

En España las competencias del gobierno se muestran necesariamente más limitadas en nuestro objeto de estudio (al no ampliar, al menos de forma explícita, el ámbito de sus competencias sobre la FP continua y ocupacional, ya que será el Ministerio de Trabajo y Seguridad Social el que se encargará de materializar estas funciones). El Ministerio de Educación atiende los aspectos relacionados con la normativa general del sistema educativo, la programación de la enseñanza y la financiación de la educación, en general, y con la regulación de los títulos profesionales, en concreto, con todo que ello comporta: constante revisión y actualización de los títulos profesionales, evaluaciones y emisión de resultados. Éste ha sido, precisamente, uno de los cometidos que se materializa de forma más directa en el Primer Programa Nacional de Formación Profesional y se incide en el Segundo Programa[43].

Indirectamente, esta función puede relacionarse con una atención que se halla presente de algún modo sobre la FP continua y ocupacional, si semantiene viva la preocupación por la acreditación de la experiencia, tal y como se desprende también del último programa Nacional de Formación Profesional. Sin embargo, también hay que tener en cuenta que en España ambas modalidades se encuentran en diferentes Ministerios, al corresponderse la formación ocupacional y Continua con el Ministerio de Trabajo y Seguridad Social.

Y es que, además, existen en ambos países competencias compartidas con el Ministerio de Trabajo. En Alemania se suma además el Ministerio Federal de Asuntos Familiares, Mujeres, Jóvenes y Ancianos. De esta manera se pretende llevar a cabo una política de FP enérgica que se conecte con determinados colectivos sociales más susceptibles de sufrir problemáticas de todo tipo relacionados en mayor o menor parte con carencias o debilidades en la formación recibida.

Concluyendo con las funciones del gobierno, el rasgo que más divergencia presenta al ser aplicado en ambos países, en cuanto a este reparto de competencias que ha sido objeto de análisis por parte de la institución central consiste en que mientras el Gobierno en España se muestra más explícito con los aspectos relacionados con la FP reglada, el Gobierno de Alemania se concentra sobre la FP en el ámbito de la empresa, pero no únicamente: la FP ocupacional y sobre todo la formación continua también se estructuran como responsabilidades gubernamentales[44].

Tabla 3
Organos regionales para la administración, gestión y supervisión de la educación en España y Alemania

Organos Regionales

Semejanzas

- Existencia de unidades políticas descentralizadas.
- Existencia de organismos regionales encargados de la Administración educativa.
- Presencia de las Cámaras como organismo representativo, y algunas de sus competencias (asesoramiento y supervisión de empresas).

Diferencias

- En la denominación y número de las unidades políticas descentralizadas.
- En la denominación y número de organismos regionales.
- En el grado de compromiso adquirido entre los órganos regionales.
  En la denominación y competencias adquiridas por las Cámaras profesionales

ESPANA	ALEMANIA
Comunidades Autónomas (CC.AA.) (17).	*Länder* (16).
Consejerías de Educación.	Ministerio de Educación, Ciencia, Investigación y Tecnología de los *Länder* y Comités Regionales.
Elaboración de planes de estudio de FP reglada sobre los mínimos estipulados por el Gobierno.	Planes de FP sobre la escuela.
Cámaras de Comercio, Industria y Navegación. Participación activa en la elaboración de los planes de FP, formación de responsables en las empresas, colaboración con la programación, desarrollo y	Cámaras de Industria y Comercio, y Artesanos y Oficios. Participación en los planes de FP, competencias concretas sobre los exámenes.

evaluación de las prácticas	

2.3. Órganos regionales

La descentralización educativa se muestra como una realidad política que se aplica sobre ambos países. De hecho, el esquema establecido en torno al reparto de las competencias que se fijan indica que éstas son muy semejantes, tal y como se ha desprendido del análisis realizado también sobre el texto de las Constituciones, en el primer apartado.

Si se compara la situación correspondiente a los *Lüder* con la referente a las Comunidades Autónomas, puede comprobarse en ambos casos que el proceso de delegación de competencias propio de la descentralización se ha producido gradualmente. Además, existen en España Comunidades Autónomas con competencias en educación y otras no, aspecto éste que no sucede en Alemania, donde todos los Länder poseen competencias sobre educación (y algunos generan incluso opciones educativas individuales y acordes a sus necesidades más inmediatas).

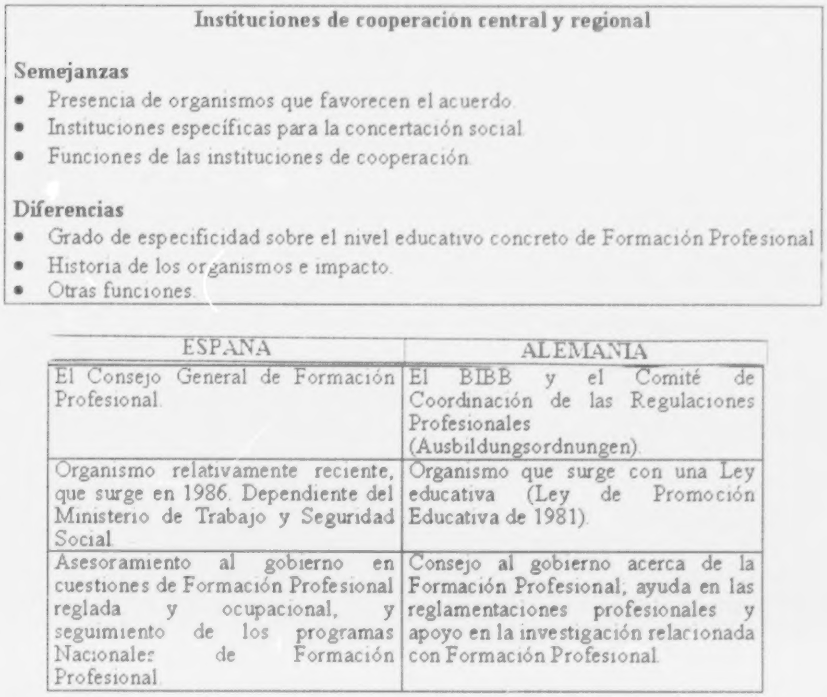
En cuanto a las funciones que éstos han de cumplir, en España parece dominar la tarea de gestión del sistema de FP (elaboración y aprobación de planes, programas de estudio y orientaciones pedagógicas que complementen las enseñanzas fijadas por el Estado, ejecución de programas de inversión en programación y equipamientos, aprobación de libros de texto y material didáctico que haga referencia a las enseñanzas complementarias, etc), mientras que en Alemania domina la función de supervisión unida a la de administración. Ambos completan los planes de estudio que han sido diseñados a nivel más centralizado, y es importante destacar como a este nivel el *Lüder* se encargará de la escuela profesional, no de la empresa (que es, como se ha indicado, competencia del gobierno federal).

Las Cámaras de Comercio y Artesanía en Alemania, instituciones autónomas de la economía regional a las que las empresas se alían, son acreedoras de un mayor peso y responsabilidad que en España, factores éstos que traducen todo lo anterior en competencias[45]. Una de ellas, que refuerza precisamente la potencia estratégica de esta institución, es la que la vincula de forma directa con la organización y realización de exámenes profesionales parciales y finales de carácter estatal, formando parte integrante y activa del comité de los organizadores de los certificados. De este modo se consigue, además, que los exámenes transcurran independientemente de la valoración de las empresas, consiguiendo que éste se desenvuelva con mayor margen de objetividad. Otras funciones significativas se vinculan directamente con el perfeccionamiento de los trabajadores, así como con la delegación de ciertas funciones relacionadas con decretar disposiciones legales sobre algunos tópicos de FP (en la actuación sobre ciertos colectivos, por ejemplo).

En este sentido, y en la medida en que las Cámaras profesionales van adquiriendo en España también mayor enjundia y son acreedoras de más competencias en materia profesional, relacionadas sobre todo con el apartado de prácticas, se ha creado en España el denominado `certificado de Cámara´, documento legal expedido por éstas que, si bien a efectos escolares no sustituye al certificado de FP que ha de concederse desde el centro educativo, puede convertirse en un garante de calidad de cara a la consecución de un posible puesto de trabajo en las empresas.

De todos modos, lo anterior puede traducirse en una realidad según la cual las Cámaras españolas ya han tomado un papel más dinámico, y su actividad comienza a desplegarse y a ser escuchada desde todas las instancias sociales responsables de la FP, en especial en el entorno empresarial, ya que en cierta medida se convierten en "las guardianas de la empresa"[46]. Desde este ámbito hoy las Cámaras adquieren más responsabilidades: deben elaborar un censo de empresas colaboradoras, comprobar si los requisitos que ofrece la empresa formadora satisface las demandas de formación, asesorar a las empresas en materia de prácticas y colaborar en la programación, desarrollo y evaluación de las mismas.

Tabla 4
Instituciones de cooperación central y regional



Instituciones de cooperación central y regional

Semejanzas
- Presencia de organismos que favorecen el acuerdo.
- Instituciones específicas para la concertación social.
- Funciones de las instituciones de cooperación.

Diferencias
- Grado de especificidad sobre el nivel educativo concreto de Formación Profesional
- Historia de los organismos e impacto.
- Otras funciones.

ESPANA	ALEMANIA
El Consejo General de Formación Profesional.	El BIBB y el Comité de Coordinación de las Regulaciones Profesionales (Ausbildungsordnungen).
Organismo relativamente reciente, que surge en 1986. Dependiente del Ministerio de Trabajo y Seguridad Social.	Organismo que surge con una Ley educativa (Ley de Promoción Educativa de 1981).
Asesoramiento al gobierno en cuestiones de Formación Profesional reglada y ocupacional, y seguimiento de los programas Nacionales de Formación Profesional.	Consejo al gobierno acerca de la Formación Profesional; ayuda en las reglamentaciones profesionales y apoyo en la investigación relacionada con Formación Profesional.

2.4. Instituciones de cooperación central y regional

Ambos países muestran dos tipos de instituciones a través de las cuales se manifiesta la cooperación entre las diferentes instancias educativas: los organismos cuyas funciones consultivas y de control se extienden por todos los niveles educativos[47], y las que aparecen como específicas para el nivel particular que está siendo objeto de estudio. Existe un menor número de instituciones basadas en la cooperación en este segundo caso, concentradas en la FP.

Interesándonos, en efecto, por el caso más restrictivo, en España, es el Consejo General de Formación Profesional el que ocupa esta posición. Este organismo es relativamente reciente, pero ya ha tenido un papel estratégico en la elaboración de los nuevos Programas Nacionales para la Formación Profesional, al encargarse, entre otros aspectos, de su diseño. Se espera, así, que continúe su labor en la línea comenzada, al tener ahora que realizar un seguimiento y evaluación de forma sistemática del proceso que ya se ha desarrollado y del que ya se demandan las primeras valoraciones.

En Alemania, este papel corresponde al Instituto Federal de Formación Profesional (BIBB) (*Bundesinsittut fü Berufsbildung*). Este organismo profesional muestra una mayor madurez organizativa, puesto que, si bien ambas instituciones fueron concebidas en fechas próximas en el tiempo, (1986 para España y 1981 para Alemania), el BIBB entiende y aplica la cultura de la participación social de una forma más orgánica y práctica[48]. De hecho, se halla conformado por un sistema de distribución de estructuras de toma de decisiones altamente complejo (Estado, *Läder*, cuerpos regionales públicos, Cámaras y sindicatos asociaciones de empleadores), pero conjuntamente responsable de una FP que se establece dentro de unos parámetros de calidad y exigencias demandados por la propia economía y sociedad alemanas.

Como aspectos convergentes, entre los cometidos comunes que estos organismos realizan, se destaca la ayuda prestada para la configuración de las reglamentaciones profesionales. En Alemania se incide también en el apoyo concedido a la investigación educativa en este terreno[49], a fin de mantener constantemente actualizado el nivel con los avances que van produciéndose en el mismo. En España, por su parte, se resaltan las funciones de asesoramiento y consulta al gobierno en cuestiones relacionadas con todos los niveles educativos, además de las que ya se han hecho referencia.

3. Algunas conclusiones del estudio comparado.

Tras el estudio comparado, a partir de la yuxtaposición de datos (a través de la cual se ha podido conocer cuáles son las semejanzas y las diferencias establecidas en torno a una serie de temáticas), es el momento de retomar el objetivo inicial y poder estudiar los efectos que dicha premisa ejerce sobre la realidad de la FP en Alemania y en España. En efecto, la hipótesis que bien podría formularse como `El patrón de cooperación entre las diferentes instancias en la FP española asegura una FP de calidad en la medida en que se produce un reparto de competencias efectivo y regulado, como ocurre en el modelo alemán´ resulta confirmada, a partir de los resultados obtenidos en la Comparación, y puede concluirse con la afirmación de que existe, a un nivel generalizado, una firme consolidación en la tendencia que persigue el fortalecimiento de patrones de cooperación educativa entre las diferentes instancias responsables de la FP, desde los niveles más centrales a los niveles más regionales, pasando por las estructuras de concertación, que también ejercen un peso notable a la hora de establecer decisiones en materia profesional.

Las consecuencias que la democratización ejerce sobre todos los

> aspectos de la realidad educativa parecen traducirse paradójicamente de forma más legítima en España que en Alemania, ya que es en este primer país donde se produce una distribución de competencias entre centro y periferia más proporcional a nivel jurídico, político y administrativo. En Alemania tiene lugar un reparto taxativo entre las dos maneras de entender la FP: la FP en la empresa, y la FP en la escuela, ambas condicionadas y determinadas por la estructura federal del Estado. Desde la Constitución ya puede vislumbrarse este aspecto, al juzgar el papel concedido tanto al Estado como a las competencias que van a ser compartidas por otras instancias.
>
> De lo anterior puede desprenderse además que el nivel de responsabilidad parece ser de mayor enjundia en los *Läder*[50] ya que al nombrar las competencias compartidas en la legislación, en España se habla de que "las Comunidades Autónomas podrán asumir competencias (...)"[51]. Ahora bien, los artículos españoles que asignan competencias, como es el caso del presente, están llenos de frases cuya retórica es difícil de desentrañar (incluso cuesta encontrar en ellas el apartado concreto referido a educación), de modo que las transferencias se suceden muchas veces "con la misma facilidad con que se dan portazos, y este tipo de normas suelen traer más conflictos que soluciones"[52]. Así, dentro de la Constitución, las Comunidades Autónomas completarán las enseñanzas mínimas que el Estado fija. La Ley Fundamental alemana es más explícita en sus intenciones de acarrear responsabilidades para las regulaciones de FP en la empresa, en la Formación continua y en la participación en la legislación y administración de la Federación y asuntos de la Unión Europea, mostrando con ello un carácter de nuevo más independiente y a la vez más responsable con este nivel educativo concreto[53]. Será precisamente en los referentes de la legislación sobre FP donde se completen estos aspectos.

En ambos países, la figura del gobierno resulta necesaria como eje articulador de la educac

Ahora bien, en Alemania existe un concepto de FP mucho más vasto e integrador que el q

En cuanto a los órganos regionales, yde acuerdo con los principios que rigen el principio d

Volviendo al principio de descentralización, hoy se reclama más que nunca este razonamie

Si se traslada lo arriba indicado al caso concreto que está siendo objeto de estudio y compa

El Ministerio de Educación, Ciencia y Tecnología que corresponde a cada uno de los *Läde*

Da la impresión de que los órganos regionales van a mostrarse más sensibles a las necesid

Un elemento que puede ayudar a la reflexión establecida en torno a las competencias reale

En cuanto a las instituciones de cooperación central y regional, en Alemania se ha podido

En España, la atención y consiguiente interés aplicados sobre la FP, aspectos éstos que im

Finalmente, tan sólo queda indicar que las formas de cooperación no se agotan en ambos p

Para concluir, sólo queda insistir en que el presente estudio se enmarca dentro de los anális

Notas

[1] DE PUELLES BENITEZ, Manuel: "Educación y autonomía en el modelo español de de

[2] GARCÍA GARRIDO, José Luis: *Fundamentos de Educaciń Comparada*. Madrid. Dykins

[3] La diferencia en las competencias (educativas, en este caso) entre unas Comunidades Aut *Teorí de la Educaciń. Polica y Educaciń*. pp., 556-557.

[4] Ésta debería cumplir un papel principal. Puelles entiende que no puede seguir teniendo la

[5] Descrita detalladamente en EURYDICE: *Una déada de reformas en la educaciń obligatoria de la Uniń Europea (1984-1994)*. Op. Cit. pp., 125

[6] DE PUELLES BENITEZ, Manuel: "Educación y autonomía en el modelo español de des

[7] Tal y como señala CABALLERO CORTÉS, Angela: "Educación y Formación Profesion

[8] En este sentido, las Comunidades Autónomas que poseen un mayor campo competencial

[9] Como indica JATO SEIJAS, Elisa: *La Formaciń Profesional en el contexto europeo: nue desafis y tendencias*. Barcelona. Estel,1998. p., 241.

[10] Y es que, tal y como comenta Jiménez, "el modelo tiene un fuerte origen centralista del

[11] Su origen se sitúa en 1984, con motivo del Acuerdo Económico y social, pacto tripartito

[12] La FP ocupacional que no se realiza en los centros de formación es responsabilidad del

[13] DE PUELLES BENITEZ, Manuel: "Educación y autonomía en el modelo español de de

[14] El *Lnder* puede ser definido como uno de los estados constitutivos de la República Fede

[15] CASCAJO CASTRO, José Luis y GARCÍA ÁLVAREZ, Manuel: *Constituciones extran*

[16] GRUPO DE TRABAJO "INFORME EDUCATIVO" DEL INSTITUTO MAX-PLANC

[17] Ibidem. p., 193. Se añade que "el Canciller Federal dirigirá los asuntos gubernamentales

[18] Así, como expresa y matiza Richter, la Constitución no provee expresamente al Gobiern

[19] Al respecto de las competencias establecidas desde el Ministerio, según De Puelles, ésta

[20] Estos Ministerios son los que a continuación se citan: el Ministerio de Asuntos Extranje

[21] Especificadas en su Articulo 73. CASCAJO CASTRO, José Luis y GARCÍA ÁLVARE

[22] CEDEFOP Y EURYDICE: *Estructuras de los sistemas educativos y de formaciń inicial*

[23] Tal y como lo estipula el "Protocolo Conjunto relativo al Establecimiento de Objetivos
déada
de reformas en la educaciń obligatoria de la Uniń Europea (1984-1994). Op. Cit. p., 101.

[24] TAIVITIÁN, Roland: "El diálogo social comunitario: evolución y desafíos". *Formaciń*

[25] WEEGMANN, Ingeborg: "El papel del Estado y de los interlocutores sociales en la FP".

[26] En Capítulo II Sección 6 `Establecimiento y Tareas´.BUNDESMINISTERIUM FÜR BI

[27] En estrecha colaboración con otra institución, la *Deutsches Institut fń Fernstudienforsch*

[28] Así, por ejemplo, en 1986, y a tenor de la financiación del sistema de FP, la Ley obligab

[29] Como es el caso del programa *LEONARDO DA VINCI*, programa de intercambio de est

[30] KOTCH, Richard y REULING, Jochen: "The responsiveness and regulation of Training

[31] En su Reglamento aparece como función el tratamiento y solución de "Materias de rele
déada
de reformas en la educaciń obligatoria de la Uniń Europea (1984-1994). Op. Cit. pp., 101

[32] Una medida que se tomó en concreto por parte de la Conferencia fue, en el "Acuerdo ma

[33] IV Parte `Comités de Formación Profesional´. División I y II *Secciń 55 (Deberes)*. BUN

[34] Para un conocimiento más exhaustivo del impacto de la Constitución sobre la educación

[35] GENERALIDAD VALENCIANA: *La Constituciń españla*. Op. Cit. pp., 1 y 36-37.

[36] Ibidem. Artículo 40. p., 10.

[37] Ibidem. Articulo 148. p., 36.

[38] Ibidem. Artículo 149. p., 37.

[39] CASCAJO CASTRO, José Luis y GARCÍA ÁLVAREZ, Manuel: *Constituciones extran*

[40] Ibidem. Artículo 50. pp., 189-190.

[41] Ibidem. Artículo 63. p., 192.

[42] Este aspecto puede ser consultado en RICHTER, Ingo: Chapter three: "West Germany,
déada
de reformas en la educaciń obligatoria de la Uniń Europea (1984-1994). Bruselas. EURY

[43] Una información más exhaustiva sobre los objetivos y el espíritu que rige al citado progr
polica
de Formaciń Profesional (1997-2000). Madrid. FORCEM, 1996; MINISTERIO DE TRA

[44] Además, e incidiendo sobre este aspecto, no deja de sorprender cómo se hace referencia

[45] Para revisar el papel y funciones acometidas por las Cámaras en Alemania, consúltese:K

[46] Para revisar el papel y funciones acometidas por las Cámaras en España: CONSEJO SU

[47] Estas funciones son cubiertas por la Conferencia Permanente de Ministros de Educación

[48] Establecido a partir del Capítulo II Sección 6 `Establecimiento y Tareas".BUNDESMIN

[49] En Alemania, establecido a partir de las directrices de la Ley de Promoción de la Forma

[50] Como ya se señala en la Ley Fundamental, la característica más singular que describe es

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A Profile of Chief Academic Officers at Four Year Colleges and Universities

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Abstract

Chief Academic Officer (CAO) is the most common position title before assuming the presidency of a college or university. Results from a national survey are used to develop a profile of the CAO in each respective Carnegie institutional classification. The typical CAO in four-year institutions is Caucasian, male, 54 years old, and married. He holds a doctoral degree, most likely in humanities or social sciences, and has held the CAO position for 5 or fewer years. Most often, the CAO served as a Dean or Associate Dean in the previous position. All CAOs have classroom experience, but 3% have never taught full-time. With only slight variances among the percentages, these characteristics are similar for each of the respective Carnegie classifications. Comparisons are also made between the characteristics of presidents and CAOs.

Introduction and Background

A critical need of any organization is leadership (Martin & Strauss, 1956). There are a number of titles common to the position that provides academic leadership in colleges and universities, Provost or Vice President for Academic Affairs are common examples. In this article we use the term chief academic officer (CAO) to refer to all individuals who have overall responsibility for the academic component of an institution of higher education. The simple fact that the chief academic officer (CAO) has authority and influence over both the goals and objectives and the resources dedicated to the instructional program of a college or university points to the overall importance of this leadership position (Weingartner, 1996). Given the current state of declining resources and eroding public confidence, effective leadership of the academic program has become a key challenge facing higher education organizations (Martin & Samels, 1997). The challenge is so great that Birnbaum (1992) announced that in many instances the CAOs impact on an institution was as great, or even greater, than that of the president.

Who are the people primarily responsible for providing academic leadership in higher education institutions? Given the importance of the role, it is interesting that so little attention has been paid to them. Since 1980, only six studies of individuals in the CAO position have been reported in the literature. Three studies reported information on chief academic officers in two-year colleges (Hawthorne, 1994; Twombly, 1988; Vaughan, 1990), two studies included individuals at both two- and four-year institutions (Moden, Miller, & Williford, 1987; Warner, Brazzell, Allen, Bostick, & Marin, 1988) and one study was limited to CAOs in four-year institutions (Moore, 1983). As this investigation focuses on CAOs at four-year institutions, only applicable previous research is included to provide a background.

Moden, Miller, and Williford (1987) developed a stratified random sample based on the student FTE size of 3,328 higher education institutions and their branches. Of the 415 institutions surveyed, usable returns were received from 331 (73%). Two-year institutions employed 40% of the respondents. Slightly more than four-fifths (81%) of the positions were held by males. The ages of the CAOs ranged from 34 to 67, with a mean of 49 years. Slightly less then one-fourth (22%) of the CAOs had been in the position for one year or less and 35% reported 5 or more years in office.

Warner et al. (1988) surveyed a randomly selected sample of 800 administrators at the level of dean or above. The sample was not restricted by institutional type, with surveys sent to universities, colleges, community colleges, and technical schools. A usable response rate of 49% was realized. Of those responding to the query of title of current position, 41 (11%) were CAOs. Results of the survey, however, are presented for all administrative positions, ranging from assistant or associate dean to president and chancellor.

Moore (1983) surveyed a stratified random sample of 4,000 line administrators representing 1,600 accredited four-year institutions. Responses were received from 2,896 (73%) administrators in 55 positions. Of the respondents, 151 (5%) were CAOs. The vast majority of CAOs were male (86%), Caucasian (96%), and married (83%). The ages of the CAOs ranged from 37 to 68, with the majority (51%) between the ages of 45 and 55. Only 14% of the CAOs had been in the position for 11 or more years, with 59% reporting a tenure of 6 or fewer years. Almost all (99%) of the CAOs had earned a doctoral degree. A vast majority (88%) held academic rank, more than three-fourths (78.6%) were professors, and a majority (60%) were tenured.

The American Council on Education (ACE) has presented three profiles of the career experiences of presidents from data gathered in 1986, 1990, and 1995. Each of these profiles revealed that chief academic officer was the most common position title before assuming the presidency. In the most recent report (Ross & Green, 1998), CAO was the previous position of 26.5% of the respondents, followed by president at another institution (19.9%), and deans or their associates (11.9%).

Using data provided by the National Center for Educational Statistics for the years 1974-81, Rickard (1982) reported that CAOs had the highest rate of turnover of top level administrative offices (20%). This trend has not changed as the CAOs experienced an annual turnover rate of 19% for the years 1985-92, again a rate higher than chief business officers, chief student affairs officers, and presidents (Mooney, 1993).

Considering the role of the position in the career experiences of presidents, the rate of turnover by position holders, and the importance of the position to higher education organizations, the CAO position emerges as the "next step" in understanding career paths in higher education administration. The purpose of this article, therefore, is to add to the research on administrative careers in higher education by developing a profile of chief academic officers at four-year colleges and universities.

Methodology

Survey Instrument

We contacted Marlene Ross, principal author of the ACE reports, who granted us permission to adapt the ACE President's Survey to gather data regarding chief academic officers (M. R. Ross, personal communication, October, 1997). There were three reasons we selected the ACE instrument as a base for our inquiry. First, the three presidential profiles are the most comprehensive data concerning administrative careers in higher education. Second, similarity in instrumentation would allow for comparisons between the experiences of chief academic officers and presidents. Third, we hoped to encourage other researchers to take a similar approach in examining other top-level positions in higher education.

Our revised survey instrument, therefore, is based on the same demographic and career experience questions as found on the ACE presidential survey with two modifications. First, we asked for the specific position title. Ross and Green (1990) stressed that beyond the general agreement that president or chancellor indicates the chief executive officer, there is little consensus concerning the specific responsibilities associated with administrative titles in higher education. Using data from the *1995 Higher Education Directory*, Martin and Samels (1997) found that the words vice-president and dean each occurred in the chief academic officer title of approximately 40% of the reporting institutions, with provost listed as the title of approximately 16% of the reporting institutions. Second, we were interested in the faculty experiences of the CAOs. One measure of connection to the academic component of the institution is whether or not the CAO holds faculty rank or tenure. While some institutions do not offer rank or tenure to administrators, the practice is still followed in many instances. Further, holding rank or tenure in the previous position and the highest faculty rank achieved also provide insight to the academic connection. To gather information on faculty experiences, we asked about rank and tenure for the current and two previous positions. In addition we questions on the highest rank achieved and the total years of full-time faculty experience. The revised survey instrument was piloted to eight chief academic officers, representing the respective Carnegie classifications (1994).

Population, Survey Method, and Response

The survey was mailed in November of 1997 to the Chief Academic Officer at 1372 four-year colleges and universities. This population included all institutions listed in the 1994 Carnegie classifications of higher education, limited to accredited institutions as listed in the 1997 *Higher Education Directory*. An initial follow-up survey was sent in January of 1998. Finally, follow-up by fax and telephone was conducted during May of 1998. Overall, 1058 surveys (77%) were returned. After accounting for positions that were vacant or currently filled by individuals with the title of acting or interim and eliminating responses that did not come from the chief academic officer, 971 usable surveys (71%) were returned from the population. The usable rate for the respective classifications ranged from a low of 51% (Doctoral Universities I) to a high of 78% (Baccalaureate Colleges I). Table 1 presents information regarding the usable return rate.

Table 1
Usable Returns by Carnegie Classification

Classification	N	Return	%
Research Universities I	88	56	64
Research Universities II	37	23	62
Doctoral Universities I	51	26	51
Doctoral Universities II	58	42	72
Master's Colleges and Universities I	430	305	71
Master's Colleges and Universities II	89	68	76
Baccalaureate Colleges I	165	128	78
Baccalaureate Colleges II	454	323	71
Total	1372	971	71

Data analysis

We created eight databases for each respective Carnegie classification. Where possible, responses were coded numerically and a written guide of coded categories was created for reference. In an additional effort to assure reliability, we hired individuals independent of the study to enter the data and additional independent observers to substantiate the databases. For the Carnegie classifications with fewer than 150 responses (RI, RII, DI, DII, MII, BI) the observers verified all survey information to the databases. For the Carnegie classifications with responses above 300 (MI, BII) the observers selected a random sample of 50% of the surveys to compare to the databases. Overall 658 (68%) of the surveys were examined, with errors in the database identified for 12 instruments. This resulted in a 98% reliability rating for the data.

Personal Characteristics

Information on the characteristics of sex, race, age and martial status is presented in Table 2. The characteristics of spousal employment and religious affiliation appear in Figures 1 and 2, respectively.

Table 2
Demographic Profile by Carnegie Classification

Characteristics	RI	RII	DI	DII	MI	MII	BI	BII
Sex (percentage)	N=50	N=23	N=27	N=43	N=299	N=70	N=126	N=318
Male	78	87	67	88	75	73	71	74
Female	22	13	33	12	25	27	29	26
Race/Ethinicity (percentage)	N=51	N=23	N=27	N=43	N=296	N=70	N=128	N=320
Asian	--	--	--	--	--	3	1	1
African-American	6	--	4	5	7	6	4	6
Caucasian	94	100	96	95	90	90	95	91
Hispanic (non-black)	--	--	--	--	1	--	--	1
American Indian	--	--	--	--	>1	--	--	--
Multiracial	--	--	--	--	>1	--	--	1
Other	--	--	--	--	>1	--	--	--
Age (years)	N=48	N=22	N=25	N=41	N=279	N=67	N=119	N=318
Mean	55	56	64	56	54	55	52	53
Median	55	56	56	56	54	55	52	53
Mode	55	57	56	56	54	55	53	53
Range	43-66	46-70	41-63	45-70	37-68	41-68	37-67	34-73
Marital Status (percentage)	N=50	N=23	N=27	N=43	N=298	N=70	N=129	N=323
Never married	2	--	7	2	6	6	6	6
Religious Order	--	--	--	2	2	6	--	5

Married	96	96	59	86	84	81	86	80
Separated	--	--	--	--	1	1	2	1
Divorced	2	4	27	10	6	6	5	7
Widower/Widow	--	--	7	--	1	--	1	1

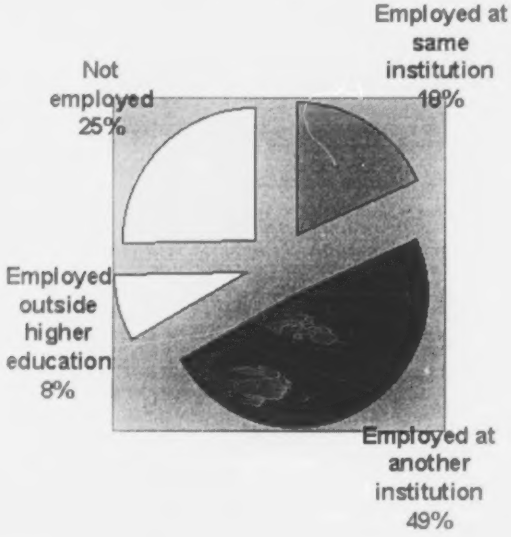

Figure 1. Employment of Chief Academic Officers Spouses

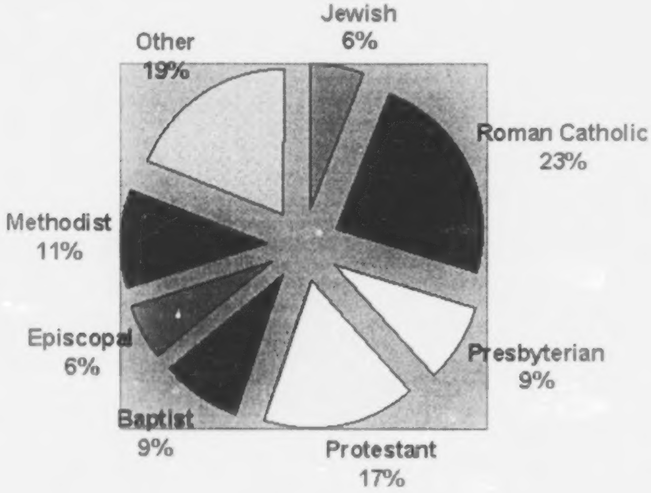

Figure 2. Religious Affiliation of Chief Academic Officers

Sex and race

Twenty-five percent of all CAO respondents were women. As indicated in Table 1, the representation of women in the CAO position ranged from a high of 33% in Doctoral I institutions to a low of 12% in Doctoral II institutions. Members of minority groups held 8% of the CAO positions. African-American CAOs constitute the largest minority group (5.8%), followed by Asian and Hispanic (.6% respectively), multiracial (.3%), and American Indian (.1%). Members of minority groups are most represented in the CAO position at MI and MII institutions. No respondents from RII institutions indicated that they were members of minority groups. Almost one-third (32%) of the minority respondents were female; 44% of African American respondents were female.

Age

The median and, after rounding, the mean age of the CAOs was 54 years. Both the youngest (34 years) and the oldest (73 years) respondents were at BII institutions. Slightly more than two-thirds (70%) of the CAOs were between the ages of 40 and 56. Among women, 73% were between the ages of 40 to 56. The mean age of women CAOs is lower than their male counterparts at research institutions (50 to 55 at R-I and 48 to 56 at R-II) and higher than the male CAOs at M-II institutions (59 to 55). Only 1% of all respondents were below the age of 40 and no respondents from Research (I and II), Doctoral (I and II), or Masters II institutions indicated they were less than 40 years of age. In terms of age, the responses of minority members were similar to the population as a whole. The mean age of minorities was 53 and 70% were 56 years old or younger.

Marital status, spousal employment, religious affiliation

The vast majority of CAOs are married (83%), ranging from a high of 96% in the RI and RII categories to a low of 59% in the DI category. Slightly more than 8% of the CAOs have never been married, 2.7% of these indicating they were members of religious orders. Among married CAOs, 76% had spouses who were employed. Almost two-thirds (64.5%) of the working spouses were employed in higher education, 17.5% at the same institution as the CAO. Virtually two-thirds (65.4%) of the spouses were employed on a full-time basis. Spouses of MII CAOs were most likely to work (83%) and were most likely to be employed in higher education (78%). Spouses of RII CAOs were least likely to work (50%). Slightly more than one-half (51%) of the CAOs identified themselves as Baptist, Episcopal, Methodist, Presbyterian or other type of Protestant; 24% were Catholic; 6% were Jewish, and 1% listed themselves as Eastern Orthodox. Among the CAOs who reported memberships in religious orders, 38% were ordained ministers, 32% were Catholic sisters, and 26% were Catholic priests or brothers.

Professional Characteristics

Position Title

Table 3 presents words most often reported in the titles of chief academic officers. In order to develop these categories, specific adjectives such as senior, executive, academic, and instructional were removed. Vice President (32%) is the most common title of the CAO, followed by Vice President and Dean (17%), Vice President and Provost (16%), Provost (12%), and Dean (11%). Vice President, Vice President and Provost, and Provost are the only titles found across all of the respective Carnegie classifications.

Table 3
Generic Titles of Chief Academic Officer
(percentage by Carnegie Classification)

Title	RI	RII	DI	DII	MI	MII	BI	BII
Vice Chancellor	12.5	--	--	2.4	4.6	4.4	1.6	2.5
Vice Chancellor & Provost	10.7	8.7	--	2.4	5.2	2.9	--	--
Vice President	5.4	8.7	23.1	26.2	40.7	39.7	8.6	40.2
Vice President & Provost	41.1	60.9	30.8	42.9	25.6	5.9	5.5	6.2
Vice President & Dean	--	--	3.8	2.4	4.9	25.0	37.5	26.0
Provost	30.4	17.4	30.8	16.7	11.5	7.4	14.8	6.5
Provost & Dean	--	--	7.7	2.4	1.3	4.4	7.8	3.1
Dean	--	4.3	--	4.8	5.2	10.3	23.4	15.5
Other	--	--	3.8	--	1.0	1.5	0.8	--

Academic Background

The field of study of CAOs is presented in Table 4. Overall, more CAOs studied humanities/fine arts (30%), followed by social sciences (28%), education (15%), and physical/natural sciences (12%). Social sciences emerged as the predominant field of study for four of the respective classifications (PI, DI, DII, BII). Humanities/fine arts were the predominant field of study for three classifications (MI, MII, BI) and physical/natural sciences was the predominant field in the remaining classification (RII). The Ph.D. was earned by 86% of the CAOs, 9% had been awarded the Ed.D., 3% held professional degrees, and 2% reported the master's as the highest awarded degree.

Table 4
CAO Field of Study
(percentage by Carnegie Classification)

Title	RI	RII	DI	DII	MI	MII	BI	BII
Agriculture	3.6	--	--	2.4	--	--	--	--
Biological Sciences	9.1	8.7	--	4.8	4.7	6.0	3.1	4.9
Education	5.5	4.3	8.0	11.9	15.8	14.9	3.9	21.4
Engineering	9.1	4.3	4.0	11.9	0.7	--	--	--
Health Professions	3.6	--	--	4.8	0.4	3.0	--	--
Medicine	3.6	4.3	--	2.4	--	--	--	--
Humanities/Fine Arts	14.5	4.3	32.0	26.2	29.9	35.8	40.9	29.4
Religion/Theology	1.8	--	--	--	4.0	4.5	3.1	4.5

Physical/Natural Sciences	20.0	47.8	12.0	4.8	14.4	13.4	7.9	7.8
Social Sciences	25.5	26.1	44.0	30.8	25.8	19.4	40.2	29.8
Law	3.6	--	--	--	0.4	--	--	--
Other	--	--	--	--	4.0	3.0	0.9	2.3

Rank and Tenure

Information concerning faculty rank and tenure is presented in Table 5. It is more common for CAOs to hold rank than to hold tenure. Of the CAOs responding to this query, 89% held faculty rank with 64% also holding tenure. This difference comes primarily from the MII and BII classifications, each with more than a 35% difference between the number of CAOs holding rank and the number holding tenure. Full professor is the most common rank, reported by 73% of the CAOs.

In the immediate prior position, the same percentage held faculty rank (89%), but a greater percentage (70%) also held tenure. Again, the greatest difference in numbers holding rank and numbers holding tenure are in the MII and BII classifications. Full professor was the rank held by 63% of the respondents. In response to the question about highest faculty rank ever held, 74% reported full professor, 20% reported Associate Professor, and 5% reported Assistant Professor.

Table 5
Rank and Tenure Characteristics
(percentage by Carnegie Classification)

Characteristic	RI	RII	DI	DII	MI	MII	BI	BII
CAO Position	N=52	N=23	N=27	N=43	N=303	N=70	N=127	N=319
Hold Tenure	98.1	100	85.2	93.0	66.3	52.9	72.4	47.0
Hold Rank	98.1	100	92.6	100	87.1	90.0	96.1	84.0
1st Prior Position	N=52	N=22	N=26	N=42	N=302	N=70	N=128	N=313
Hold Tenure	98.1	95.5	88.5	85.7	74.2	58.6	76.6	55.6
Hold Rank	98.1	100	92.3	92.9	87.4	91.4	95.3	83.1
2nd Prior Position	N=49	N=23	N=25	N=41	N=282	N=67	N=99	N=276
Hold Tenure	95.9	100	96.0	90.2	88.7	85.1	90.9	80.0
Hold Rank	98.0	91.3	88.0	70.7	78.0	62.7	68.7	55.8
Highest Rank Held	N=51	N=22	N=26	N=41	N=286	N=64	N=118	N=279
Professor	100	100	88.5	87.8	76.9	75.0	74.6	60.6
Associate Professor	--	--	7.7	9.8	19.2	21.9	20.3	29.0
Assistant Professor	--	--	--	2.4	3.1	3.1	3.4	10.0
Instructor	--	--	--	--	0.4	--	1.7	0.4
Lecturer	--	--	3.8	--	--	--	--	--
Emeritus	--	--	--	--	0.4	--	--	--

Professor								

Years in Positions

As shown in Table 6, there were new CAOs in six of the eight classifications. In four classificati
The length of time spent in the two prior positions is also shown in Table 6. As with the CAO po
Table 6 also reveals differences in the CAOs full-time teaching experience across the respective

* Multiple modes

Career Paths

Tables 7 and 8 present the title of the first and second previous position. Dean is the most comm
Lateral movement, from CAO at one institution to the same position at another institution, was f

*Positions grouped as University Administration includes assistant to president, assistant to chancellor, and director of ins
**Positions grouped as College/School Administration includes director of graduate studies (for a specific college or schoo
***Positions grouped as Unit Administration include chair, director, coordinator, or head of a department or program.

*Positions grouped as University Administration include assistant to president, assistant to chancellor, and director of instit
**Positions grouped as College/School Administration include director of graduate studies (for a specific college or school
***Positions grouped as Unit Administration include chair, director, coordinator, or head of a department or program.

As shown in Table 9, slightly more than the majority of CAOs (53%) were internal candidates fo
The vast majority of CAOs (88%) stayed within the respective Carnegie classifications in movin

Discussion and Conclusions

Developing a profile of the CAO was the primary purpose of this study. The typical CAO in four
As mentioned earlier, one of our purposes in adapting the ACE Presidential Survey was to allow
In 1995, females constituted 17.2% of the presidents at four-year institutions. Their largest repre
The representation of women in faculty and administrative positions has been a concern of highe
Minorities represented 10.3% of four-year college presidents in 1995. Their largest representatio
The representation of minority groups in faculty and administrative positions has also been a hig
A difference in the employment patterns of CAO and president spouses was also identified. The
There are three key differences in the professional characteristics of presidents and CAOs. One d
A second important difference between presidents and CAOs is in their movement into the positi
The greatest difference in professional characteristics, however, was faculty experience. Slightly
Our final reason for adapting the ACE Presidential Survey was to encourage a similar approach i
Leadership in higher education continues to be an important topic. Developing profiles of indivi

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Educational Performance and Charter School Authorizers: The Accountability Bind

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Abstract

Charter schools involve a trading of autonomy for accountability. This accountability comes through two forces—markets through the choices of parents and students, and accountability to government through the writing of contracts that must be renewed for schools to continue to operate. Charter schools are supposed to be more accountable for educational performance than traditional public schools because authorizers have the ability to revoke charter contracts. Here, I focus on one central component of accountability to government: performance accountability or accountability for educational outcomes to charter school authorizers through the revocation or non-renewal of charter contracts. In this paper, I suggest that contract-based accountability for educational performance in charter schools may not be working as proponents argued it would. This article explores some explanations for why there are very few examples of charter schools that have been closed primarily because of failure to demonstrate educational performance or improvement. Future work will need to test if these challenges for authorizers hold in a variety of contexts. The conclusion examines the implications of these findings for the future of charter school accountability.

Introduction

Charter schools are premised on the idea that one can "trade" autonomy for accountability—specifically, that if one provides greater autonomy to individual schools, through deregulation and/or school-site control over finances, hiring, curriculum and mission, then one can place greater demands on the educational performance produced by those schools (Kolderie, 1990; Nathan, 1996) According to one analysis of charter school legislation, "[m]ost charter school statutes with sections on legislative intent are quite explicit in their expression of the legislature's demand for accountability for student performance" (Millot, 1996, p. 9). This accountability comes through two forces—markets through the choices of parents and students, and accountability to government through the writing of short-term (generally 3-5 years) contracts that must be renewed in order for schools to continue to operate. (Note 1)

While the theory underlying the charter school idea varies somewhat from state to state, a central part of that theory is that charter schools will be more accountable for educational performance than traditional public schools, largely because authorizers have the ability to revoke or not renew charter contracts (Kolderie, 1990; Nathan, 1996). This article focuses on one central component of accountability to government—that of performance accountability or accountability for educational outcomes to charter school authorizers (the public entities that grant operators charter contracts) through the revocation or non-renewal of charter contracts.

The early information – and this is early information, as only 29% of states with charter schools have had schools go through the renewal process – is that "in those states [where schools have come up for renewal], almost all schools seeking renewal have been successful" (SRI International, 2000, p. 56). While a number of schools have closed (39 as of 1999, according to the Center for Education Reform), these closures have mostly been for organizational or financial reasons; as Finn and his colleagues argue, the most common reasons for closure have been, "organizational chaos, management meltdown, and fiscal shenanigans" (Finn, Manno, & Vanourek, 2000, p. 137). One explanation for the continuing operation of the vast majority of charter schools is that they are, indeed, producing improved student achievement. However, research and evaluations suggest a more complicated story, with a mix of success and struggles (Horn & Miron, 1998; Horn & Miron, 1999; Public Sector Consultants & MAXIMUS, 1999; RPP International, 1999).

In this article, I suggest that contract-based accountability for educational performance in charter schools may not be working as proponents argued it would. According to SRI International, "[f]ew charter school authorizers have revoked or not renewed charters because of student performance problems" (SRI International, 2000, p. 57). This article explores some explanations for why there are very few examples of charter schools that have been closed primarily because of failure to demonstrate educational performance or improvement. Possible explanations, including the challenges of determining school quality, the strong and vocal support of charter school communities (relative to the quiet and diffuse public interest), and concerns about damaging the charter school movement, provide strong incentives for authorizers to allow schools to continue to operate. I am not suggesting that no authorizers are taking performance accountability seriously—some clearly are – but that acting as the originators of charter schools intended can be very difficult for authorizers.

Following a brief description of the data sources drawn on, I discuss the accountability ideal for charter schools, and the relationship between this ideal and ideas of a "new accountability" for public education more generally. This is followed by a description of how authorizers are addressing their different roles that relate to accountability – including approving applications, overseeing schools, and granting new contracts. In the next section, I explore some possible explanations for why charters schools are rarely closed and some of the "middle grounds" authorizers have created to provide incentives and sanctions to schools without actually forcing them to close. Future work will need to test if these challenges for authorizers hold in a variety of contexts. The conclusion examines the implications of these findings for the future of charter school accountability.

The Accountability Ideal

Charter school accountability has both unique components, especially the granting of an actual charter contract allowing an entity not governed directly by a school board to operate a public school, and facets that are closely intertwined with broader changes in ideas about public school accountability. In the following two sections, I examine both of these aspects of accountability.

Ideals of accountability for charter schools

One of the challenges of talking about accountability for charter schools—or a host of other issues—is the variation among states as to the interpretation of the charter school idea in legislation (Buechler, 1996 (July); Bulkley, 1999c; Mulholland, 1996). Accountability is often separated into two components – *to whom* an entity (such as a school) is accountable, and *for what* they are accountable (Elmore, 1995). As noted earlier, accountability for charter schools has two facets:

- Market-based accountability, which operates through the choices of parents and students; and
- Performance-based accountability, which operates through contracts between charter schools and their authorizers

> specifying the educational and other outcomes the school will produce if it is to continue to operate.

The reliance on both government and the market is a critical aspect of the charter school idea, and a method for ensuring that charter schools serve both parental and broader societal interests. As well, these two forces are intended to combine and create a stronger form of accountability then is found in the traditional public school system, where schools are less likely to face the possibility of closure through either the withdrawal of students or the removal of a contract that allows them to operate (although they are increasingly likely to face sanctions such as closure or reconstitution if they do not meet state-defined performance expectations). The implicit theory of charter schools is that these two forms of accountability will complement and reinforce each other.

According to a study of accountability components in charter school legislation, Lake and Millot find three general responsibilities for charter school authorizers (Lake & Millot, 1998)—(the implementation of each of these areas are discussed below). The first responsibility is in the charter school application itself, and involves the "requirements to become a charter school" (p. 19). Legislation varies, but generally includes some of the pieces that must be included in an application, such as the school's mission, the type of staff who will be hired, the type of educational program that will be offered. Among these requirements are usually the expected outcomes of the educational program and some reference to the methods for measuring those outcomes. The second responsibility is to monitor or oversee the charter school in some way; often, this responsibility rests with the authorizer and with one or more other branches of government (i.e. the state board of education). Within legislation, specific and/or general reports may be required.

Thirdly, at the core of the charter school theory, authorizers must use their authority to choose not to renew a charter for a school that has not met the terms of the contract—including expectations involving educational performance—or to revoke a charter when the operation of a school has clearly strayed from the original intentions. (Note 2) In a book on contracting in education, an idea that has some strong similarities to chartering, Hill and his colleagues describe a contract in this way:

> A contract is a promise to deliver quality education for children in return for public funds and a warrant to operate a school for some period of time. Some procedure is needed to make sure the school lives up to that promise. Relying solely on parent choice only holds the school responsible for the private benefits of education. (Hill, Pierce, & Guthrie, 1997, p. 67)

In the case of charter schools, advocates have focused their rhetoric on renewal as the procedure that will ensure that these schools are meeting publicly desirable educational goals. This is consistent with Lake and Millot's argument that, "[e]ffective accountability requires an efficient means of terminating schools that fail to achieve their contractual requirements, particularly in the area of educational outcomes" (Lake & Millot, 1998, p. 20). The combination of performance expectations and a "contract" creates a theory of charter school performance accountability that rests on two key assumptions:

- Authorizers can assess the quality of education offered by charter schools, using test scores and, if needed, other methods; and,
- Authorizers will act on their assessments by revoking or not renewing charters that do not demonstrate that they are providing quality education.

The "New Accountability" in public education

While charter schools are generally considered to be outside the domain of mainstream educational reform efforts such as standards-based reform (cf. Smith & O'Day, 1991), changing ideas about educational accountability influence both. Calls for a "new accountability," according to Elmore, Abelmann, and Fuhrman, have three central components: "a primary emphasis on measured student performance;" "the creation of relatively complex systems of standards" used to make comparisons among schools, districts, etc.; and "the creation of rewards and penalties and intervention strategies to introduce incentives for improvement" (Elmore, Abelmann, & Fuhrman, 1996, p. 65).

Within the traditional system, this new accountability has focused on the creation of aligned state standards and assessments that are more challenging and rigorous than in the past, and tools for recognizing and rewarding schools (and sometimes districts) that are rising above expectations and penalizing or offering assistance to schools/districts that are failing to meet them. In theory, "focusing on student performance should move states away from input regulations… and toward a model of steering by results" (Elmore et al., 1996, p. 65). In the theory underlying charter schools, the primary incentives for improving performance are the ability to continue to operate as a charter school by having a contract renewed and to be successful in the market by attracting students and the public resources they bring with them. The reverse of this are the clear sanctions for charters if they fail to improve performance—the removal of their contract, and the loss of students through the market.

Another facet of this new accountability, at least in some cases, is attempts to increase the involvement of parents and communities in school reform. This is done largely through the public reporting of assessment results. The expectation underlying public reporting is that it, "energizes parents and other community members to pressure schools for higher performance, particularly when data show differences in performance among schools that are roughly comparable in the public's eye" (Elmore et al., 1996, p. 67). Public reporting of a range of information, from test scores to attendance and graduation rates, has also been a piece of charter school accountability. However, in the case of charter schools, the purpose of public reporting has primarily been to influence the market; that is, provide information that will better enable parents and students to select among charter schools and between charter schools and other schooling options.

While some progress has been made towards the goals of the "new accountability" (Education Week, 1999), challenges are still abundant; "The reality of educational accountability at the close of the century involves contested standards, a problematic distribution of authority, weak incentives, variable capacity, and rudimentary technology" (Adams & Kirst, 1999, p. 464). Some of these same challenges have emerged for charter school authorizers, particularly regarding contested standards and variable capacity.

Performance accountability and charter school authorizers

While the approach of charter school authorizers to issues of performance accountability is the focus of this article, it is important to embed it within the broader context of the multiple ways in which charter school authorizers address accountability. Following a brief description of the data used here, I quickly describe how charter school applications and oversight by authorizers during the term of a contract are used as tools of accountability issues. This is followed by a more in-depth exploration of the oversight of educational programs and the renewal process.

Data

This research draws on a variety of sources of data. However, as an exploratory piece, it also raises questions and issues that need further consideration, and does not claim to offer a definitive discussion of charter school accountability. I draw on two research studies that examined charter school authorizers, a study of "New Regimes in Educational Governance" conducted for the Consortium for Policy Research in Education (CPRE) (Bulkley, 1999a) and the national study of charter school accountability conducted by the Center on Reinventing Public Education (CRPE) at the University of Washington (Hill et al., 2001). Both of these studies included interviews with charter school authorizers and charter school personnel; the latter involved authorizers and schools in six states (Arizona, Michigan, Georgia, Massachusetts, California and Colorado), and the former with schools and states in Arizona and Michigan. Evidence is also gathered from other recent literature on charter schools (i.e. Arsen, Plank, & Sykes, 1999; Center for Education Reform, 2000; SRI International, 1997; SRI International, 2000; Wells & others, 1998; Wohlstetter & Griffin, 1998).

A report based on the CRPE study was published in 2001 (Hill et al., 2001). This study explored a number of different aspects of the accountability issue, including market, government and internal accountability. That report provides an overview of some of the progress and challenges experienced by charter schools as they have sought to contend with the many forces placing demands upon them. In particular, the report offers a description of the strengthening internal accountability found in many schools (or accountability among immediate stakeholders in a school, including educators, parents, students and community members) and some of the issues faced in addressing external accountability, including accountability to charter school authorizers.

Applications

The first formal stage for any prospective charter school operator is to submit an application to a public organization allowed to authorize charter schools. The expectation of many policy makers and advocates of charter school laws was that these contracts would have very explicit performance objectives (Bulkley, 1999b). However, research suggests this if often not the case. For example, Hannaway's work on educational performance contracting suggests that specificity for performance in educational contracts is often low (Hannaway, 1999), and one study in California found that goals in contracts ranged from concrete and quantitative to informal and process-oriented (SRI International, 1997; see also Wells & others, 1998). In Colorado, charter school applications must explicate student performance standards, measurable objectives for student growth, and assessment and reporting procedures. But, in practice, some plans are very specific while others are "less susceptible to easy measurement" (Clayton Foundation, 1999, p. 51).

When charter school laws were first adopted, authorizers or potential authorizers with little or no experience in granting performance contracts were placed in a position of wanting or needing to evaluate and approve applications almost immediately. In addition, some authorizers were under extreme political pressure to allow some schools to get up and operating quickly. In this unclear and sometimes harried environment, applicants often went through a fairly minimal process (c. f. Bulkley, 1999a). (Note 3) The national situation may be improving, however. For example, every chartering agency in SRI's national survey reported that some or all of its schools had measurable goals in the area of student achievement (SRI International, 2000).

Since those early years, authorizers with more experience have developed clearer guidelines for applicants and, in some cases, clearer guidelines for the evaluation of applications. Many of these authorizers now require information that, they hope, will help to determine if applicants will be equipped to handle the administrative, financial and educational aspects of operating a charter school. (Note 4)

For some authorizers working with a large number of schools, the process of granting a charter is seen as a way to influence school quality both by selecting the most promising applications and by having an application process that builds capacity. Thus, these authorizers believe, the process itself can improve the quality of the schools that open by forcing applicants to address some issues involved in operating a charter school that they might not have considered previously. According to a staff person at Central Michigan University, in the application process, "we're going to take you through a structured process, we're going to help you anticipate operational difficulties, we're going to help you prepare your organization so that the first day that you open the doors, you're going [to] be prepared to educate kids."

Implicit in this focus on applications as an accountability mechanism is a belief, at least among staff at some of the larger authorizers, that if they make the process rigorous enough at the beginning, then they won't need to "worry" as much about the school in practice. While the theory of charter school accountability has generally focused on some interpretation of student outcomes, staff working for some authorizers expressed a belief that charter schools can be more accountable because of the initial application process. The more rigorous the process, they argue, the more accountable the school.

Oversight

Once an authorizer grants a charter and a new school opens or a pre-existing school begins to operate with a new governance structure, the authorizer is responsible for overseeing the school in a number of different areas. The authorizer must determine if a school is compliant with any applicable laws and regulations, as well as any specific provisions in the charter document. As a part of compliance, the authorizer needs to examine the finances of a school to check if they comply with spending and bookkeeping requirements and determine if schools are "functioning organizations." The following section examines their oversight of the educational programs of charter schools during the contract period.

Authorizers use a variety of tools for oversight, including required reports, site visits, parental complaints and surveys, outcome data, regular meetings and informal contact. There is considerable variation between authorizers as to the types of tools used and the frequency with which they are used, ranging from those who have very minimal contact with schools (generally limited to written reporting unless major problems arise) to others who supplement reporting with regular contact through visits, meetings and phone calls.

The most basic level of oversight for charter school authorizers is ensuring that schools meet legal requirements regarding compliance with state, federal, and local laws and regulations, with acceptable accounting practices, and with reporting requirements. While the theory underlying charter schools in most states revolves heavily around student achievement and school performance, a number of studies suggest that authorizers often focus their oversight on the familiar, such as compliance and financial stability, rather than on performance (Bulkley, 1999a; Garn, 1998; Henig, Moser, Holyoke, & Lacireno-Paquet, 1999; Hill et al., 2001; SRI International, 1997). In one California study, "school district officials note that, given all the ambiguity around student outcomes and what measures are valid, they are holding charter schools accountable more on fiscal, rather than academic, measures" (Wells & others, 1998, p. 19).

Regardless of whether or not compliance requirements directly impinge on the abilities of a school to operate the educational program it desires, there is clearly an opportunity cost for the schools related to compliance; the more time spent on regulatory requirements, the less time and money available for other purposes (Arsen et al., 1999).

Alongside general oversight, there is a subset of charter schools that require additional attention from their authorizers. These "non-functioning organizations" are experiencing major problems such as a substantial loss of students and/or staff, considerable infighting among staff, parents, board members or others in the school community, severe student discipline issues or major financial problems. Authorizers can identify schools that are completely, or in some aspect of their operations, non-functional through a number of sources. These include parental complaints, site visits, financial audits or reporting, and media "exposes." Often, multiple sources inform an authorizer that a school is having serious struggles.

In some cases, authorizers do nothing but simply monitor the situation unless or until it becomes severe. Other times, however, they become more engaged with the troubled school, often "behind-the-scenes." For example, authorizers can work directly with school boards and school leaders to attempt to resolve problems. In Michigan, some universities have taken an active role—sometimes apparent and sometimes behind the scenes—in schools that have been struggling; for example, authorizing staff have helped to identify governance problems in schools and promoted the replacement of board members and school leaders through advice to boards and leaders. Similarly, in Colorado, the school leader in one school visited for the CRPE study left in part because of pressures from the sponsoring district.

Finally, regular monitoring combined with detailed feedback to schools can be useful for authorizers and struggling charter schools. In Massachusetts, in-depth school site visits are one opportunity to assess how well a school is functioning. The two schools in the CRPE study authorized by the Massachusetts Board of Education both had difficulties early on, one where problems where largely governance-oriented, and another where they primarily involved the school's educational program. In each case, the site visit reports provided a form of technical assistance to the schools. By seeing themselves through the eyes of outside experts, school personnel were more able to identify and address their internal problems.

Examining the educational program and performance

In the theory underlying charter schools in most states, the schools are expected to offer an educational program that leads to improved student achievement (Lake & Millot, 1998). Authorizers can look at the outcomes of a school's education program only at the time of renewal or formal review, or they can monitor this program throughout the charter contract period as well.

Monitoring during the Contract. Early on in their work with charter schools, authorizers often focused their energy on ensuring that schools were functional organizations and were in compliance with fiscal and regulatory requirements. As authorizers have gained knowledge and experience with compliance issues, the time required for addressing these issues has been minimized and become more routinized. This has allowed them to turn increased attention to the educational programs offered by schools.

Authorizers use a number of different tools in monitoring academic achievement and a school's educational program. The most common, and certainly the most publicly visible, is student test scores. Some authorizers merely collect test score data, but do little with it during the charter contract period. In other cases, authorizers analyze the scores and provide information to the public and/or school personnel about these outcomes. A recent study by RPP International found that 85% of charter schools reported test scores to their authorizer (RPP International, 2000). However, it is important to note that the fact that student achievement is monitored, or tracked, does not necessarily mean that this data is utilized in decision-making and other actions by the authorizer. For example, in a study of California charter schools, 85% schools said they reported student achievement data to their sponsor, but only 4% said that the sponsor "had ever *requested specific actions or imposed sanctions* in response . . .." (SRI International, 1997, Part II, p. 16, emphasis in original). This potential lack of use of achievement data is tied closely to a lack of clear standards for schools; as Wohlstetter and Griffin found, "sponsoring agencies, in general, required assessment information on performance from charter schools… but often failed to specify any clear performance standards or consequences" (Wohlstetter & Griffin, 1998,

p. 15).

Test scores are not the only information used by authorizers to assess a school's educational program, as the following two examples demonstrate. In Massachusetts, where charter schools negotiate an accountability contract with their authorizer at the beginning of their charter, schools submit an annual report that includes, among other things, a discussion of their progress towards the goals of their accountability contract. Authorizers in several other states also require annual progress reports; these vary from one-page commentaries to more elaborate formal reports that include specific examples and evidence demonstrating educational progress. In Michigan, one university has recently been pushing charter schools to develop goals that are "clear, concise and measurable," in response to concerns that goals in charter contracts have at time been imprecise and progress on them difficult to assess. However, it is unclear what, if any, formal actions are taken if a school's educational program is seen as inadequate by authorizer staff.

Another way of assessing a school's educational offerings and aiding in improvement is through the use of outside organizations. For example, there a number of organizations that either accredit schools or are planning to offer accreditation, including several state charter school organizations. Two school districts in the CRPE study have required that the schools they authorize become accredited by their respective state charter organizations when this becomes possible.

In general, during the period when a charter contract is in effect, authorizers may be more focused on the day-to-day issues of compliance and dealing with non-functioning organizations than they were on broader issues of accountability for the education program schools offer. Even within the domain of "educational accountability," authorizers cite actions such as ensuring that teachers are certified and the school's curriculum is properly aligned with state standards—while these certainly may influence the academic program offered by schools, they are not the kinds of "new accountability" tools that charter advocates have emphasized. Nationally, such monitoring of performance has seldom led to charter revocation (SRI International, 2000).

Renewal. The renewal process for charter schools varies considerably across states and across authorizers. The process and criteria for renewal can be fairly clear and defined, or undefined to the point of great confusion for school personnel. The renewal process has the potential (not necessarily attained) to be a serious undertaking that holds the genuine possibility of a school not receiving a new charter, thus providing schools with a strong external incentive.

The Massachusetts Department of Education is probably the authorizer whose renewal process is most frequently held up as a "model." In Massachusetts, a number of different data sources are used in the renewal process. The most elaborate piece involves an evaluation/renewal inspection by an outside team hired by the authorizer. These teams, which consist of experienced educators and others, conduct 3-4 day visits at each school up for renewal and write a detailed report on their findings for the authorizer. A number of schools have come up for renewal, and all have received new charters along with suggestions for improving their programs.

Among other large authorizers, few have developed as clear or rigorous a procedure as has the Massachusetts DOE. For example, in the spring of 1999, one Michigan university's office that works with charter schools recommended that the university board renew all the schools whose contracts were due to expire. The materials provided to the university board included test score data on the MEAP (the Michigan state test) and another national standardized test, alongside other information on school goals. The test scores were mixed, with some schools and grades showing marked improvement and some showing little or negative change; how good is "good enough" was not spelled out either formally or informally to these schools or the university board. Other goals tended to emphasize participation rather than performance, such as attendance in foreign language or computer classes. At another Michigan university that has authorized a significant number of schools, staff said that they expected all their schools to be reauthorized before the renewal process had even begun.

Small authorizers (those that have granted only a few charter contracts) vary considerably in their approaches to renewal and are unlikely to be as clear or thorough as larger authorizers that have more resources and capacity at their disposal. Some have few clear procedures and criteria for renewal. Among the case study schools, those whose charters were granted by small authorizers were generally not very concerned about renewal. For example, personnel at the Georgia Department of Education have emphasized to the two CRPE schools the need for schools to have specific performance outcome goals in their charters, yet there was little focus on performance as an aspect of the renewal process at either school.

Some of the small authorizers have or intend to utilize external information sources in their renewal decisions, including accreditation (discussed above). For example, one district in Colorado hired an independent evaluator to evaluate a school in the year it was being considered for renewal. One California district used an external review of a charter school that was done for other district purposes in its renewal decision alongside an external study completed specifically for the renewal process. While authorizers are using a variety of tools to evaluate a school when its charter is up for renewal, the authorizers in the CRPE study generally expected to renew the charters they had granted when the time came.

Overall, for many authorizers, accountability to government has primarily focused on issues of financial and legal compliance, with some monitoring of educational programs (primarily through test scores). However, it is unclear to what extent government authorizers are using educational monitoring or evaluation to make serious decisions about the operation of individual schools. This challenge to performance accountability is recognized by both advocates and critics of charter schools; as one study noted, in practice, "accountability typically means a half-baked version of the top-down regulation-and-compliance system that the state or community applies to its conventional public schools" (Finn et al., 2000, p. 135).

The Accountability Bind

Charter school authorizers vary in important ways, such as their emphasis on compliance vis a vis oversight of educational programs, their beliefs about the proper role of an authorizer in the day-to-day operations of schools, and their faith in test scores as an appropriate measure of quality. These differences can be explained as a combination of differences in the will and capacity of authorizing agencies. For example, the charter schools office in the Massachusetts

Department of Education has operated in a political climate where there is a considerable interest in close monitoring of charter schools, and the office has responded in kind. This contrasts considerably with the two state boards in Arizona, where there is little political will for strong oversight; that political will has been translated into the selection of staff who are supporters of a more "laissez-faire" approach to authorizing, and into minimal funding for charter staff which effectively limits the oversight potential regardless of the inclinations of the staff members.

As the study by SRI International notes, while the vast majority of charter schools have yet to come up for renewal, those that have are generally receiving new contracts (SRI International, 2000). This is consistent with the information provided by the school and authorizing agency staff interviewed for the CRPE study. Interviews with authorizers and a review of the literature on charter schools suggest that they all share a number of significant challenges to closing schools, despite considerable and very important variation across authorizers in their approaches to the renewal issue. These challenges are tied to the some basic assumptions underlying the idea of charter school accountability. Four challenges are:

1. Educational performance is not simple to define or measure, nor is how good is "good enough" in educational quality.
2. Other aspects of a school's program, often more difficult to measure than test scores, are also important to families and authorizers. In this context, authorizers sometimes turn to "proxies" to assess school quality.
3. Teachers, parents and students become very invested in particular schools and destroying a community may be more difficult for authorizers than serving a diffuse public interest.
4. Finally, charter schools have become a highly politicized issue on both sides, and some authorizers are concerned about their decisions reflecting poorly on charter schools as a reform idea.

I call this constellation of challenges the "accountability bind," as authorizers are stuck between wanting to enforce accountability through renewal, but finding doing so fraught with difficulty. I am not suggesting that no authorizers are taking performance accountability seriously—some clearly are – but that acting as the originators of charter schools intended can be very difficult for authorizers.

Challenge 1: Defining educational performance with test scores

One of the greatest challenges for states attempting to develop accountability systems as part of standards-based reform is to create systems that are considered by those within education and the public to be fair and defensible (Elmore et al., 1996). Thus, in order to attach consequences to performance measures, they must be viewed as valid and reliable measures that appropriately distinguish between schools where a desirable level of learning is taking place and others where learning is inadequate. For charter school authorizers, these demands of fairness and defensibility are even greater than for state assessment systems, because the sanction of revoking or not renewing a contract is so high. This challenge sits alongside the challenge of using standardized tests to assess the performance of individual charter schools, which often aim to offer non-traditional educational programs. While authorizers are clearly monitoring the test scores of students in charter schools, it is extremely important to distinguish between *gathering* information about school quality and *using* that information for improvement and accountability purposes. Some authorizers have worked with schools to develop expectations that are more aligned to the school's stated purpose than an off-the-shelf standardized assessments, but this makes comparisons with other schools – one way of determining if a school is successful – all the more challenging. As well, charter schools often must adapt their programs to serve the needs of students who enroll at the school, who may or may not match the students expected by the founders; this can lead to a situation where meeting specific contract goals may be an unreasonable expectation. As the Hill et al study notes, "Finding ways to measure not only student achievement on standardized tests but the value-added qualities of charter schools has proven to be a challenge" (Hill et al., 2001, p. vi).

Challenge 2: Assessing quality beyond test scores

Authorizers' uncertainty about closing schools is also tied, at least in some cases, to staff members who feel that the essence of a school can never be captured by quantifiable measures, and who instead rely on a sense of "feel" about the quality of the school. As one staff person said, "[you need to] look into the eyes of the kids and the teachers and if you see the magic… you know you've got something good happening." While this attention to "feel" may well capture aspects of the educational experience offered by a school that would be missed by test scores and other such measures, it is inconsistent with the idea that charter schools should continue to operate based on their ability to *demonstrate* academic performance.

The challenges of determining "success" have often led authorizers to "proxies" that, they believe, provide indicators about the performance of individual schools. Interestingly, proxies generally seem to be used to justify an authorizer's assessment of "success" in a school, and rarely to argue that a school is not doing well. The most obvious proxy authorizers use is parental choice and satisfaction. While markets and government authority are intended to work separately in creating accountability for charter schools, authorizers—when asked to explain success—frequently point to the market. For example, the existence of waiting lists for slots at a charter school is often given as proof or evidence of the school's worth. The challenge, of course, is that if market accountability is created (obviously) via the market, and government is turning to the market to demonstrate success or performance, than the ideal of joint accountability for performance between markets and government is compromised.

Authorizers also point to the "mark of approval" given by external organizations as evidence of success or an increased likelihood of a successful school. One such mark is accreditation, both from organizations that pre-date charter schools (i.e. accreditation from the North Central Association Commission on Accreditation and School Improvement) and those that have sprung up specifically to work with these schools (mainly state charter school associations). The approval given by these organizations is a sign of quality in the eyes of many authorizers, although the lack of accreditation is not generally seen as problematic. (Note 5)

Finally, educational management organizations (EMOs), sometimes called service providers, have become increasingly common in a number of states (in Michigan, over half of all charter schools now use a service provider). These organizations can offer a variety of services, from simply keeping track of a school's finances to running the entire school, including providing the facility, hiring the staff, and selecting the educational program. Comments by authorizers suggest that, when one school operated by an EMO is seen as successful, than other schools run by the same company are more likely to be seen as successful. As with the proxy of accreditation, this reliance on EMOs may or may not be appropriate, but it is still an indirect mechanism for determining success. These examples suggest that proxies for quality often involve organizations or individuals that are largely outside the government domain, and do not themselves have a direct obligation to serve public purposes.

Challenge 3: The preferences of charter school communities vs. the "public interest"

While authorizers have difficulty with determining what is and is not a successful charter school, they have even more difficulty deciding that a school is *unsuccessful enough* to justify as high a sanction as closure. Authorizers serve a diffuse public that has general needs for high quality education, but their day-to-day reality centers around working closely with charter school operators and communities of teachers, parents and students who are heavily invested in the continuing existence of a particular school. As one staff member with an authorizer said:

> The theory sounds great about shutting schools down. The practice is much more difficult. And whether you're revoking a contract or not renewing a contract, they're both gonna be tremendously difficult… the reality is you've got teachers, you've got parents, you've got a community that's now used to the school, depending on the school, loving the school and either way you're gonna have difficulties.

This attitude towards renewal appears to be common among authorizers, despite their recognition of the political rhetoric arguing that charter schools should not be renewed if they can't prove they are improving achievement. The turmoil created for a specific group of educators, parents and children that results from not renewing a charter may outweigh the difficult to define the ideal of performance accountability for authorizers. Their relationships with charter communities bring them into regular contact with parents who are convinced of the value of individual schools and schools that have long waiting lists (with or without "proof" of academic quality), and this positive response of the market can have a profound impact on the thinking of authorizers, despite the ideal separating accountability to the market from that to government.

Challenge 4: Politics and the charter school movement

Finally, a number of authorizers are themselves politically invested in the success of the charter school "movement." The authorizers I have studied, particularly those who are involved with a large number of schools, are generally staffed by people sympathetic to charter schools. Even if they personally support the ideals of performance accountability, they may be hesitant to close schools because of fear that this will be seen as a failure of the general charter school ideal.

Finding the middle ground

Overall, the forces working against the closure of charter schools based on student performance seem likely to result in schools being renewed at a very high rate. What seems to be needed is a less all-or-nothing definition of accountability—more of an ongoing relationship than a single decision point. There are a number of ways authorizers are currently working to establish more productive and educationally substantive accountability relationships with charter schools through "middle grounds" that allow them to take some action short of actually revoking or not-renewing a charter contract. These middle grounds include: focusing on applications as a form of "input" accountability, direct or indirect intervention in schools, and capacity building/technical support.

As described earlier, authorizers (especially large authorizers) have increasingly emphasized the importance of the application process as a quality control mechanism. When asked about how schools are held accountable, several staff members working with authorizing entities responded in part by discussing the rigors of the application process. In light of the difficulty of closing schools, it makes sense that authorizers pour considerable time and energy into doing what is in their power to see that new charter schools have the greatest potential to be successful.

Authorizers can also intervene once schools have begun to operate, especially when problems are present, through direct or indirect methods. Direct intervention involves requiring that schools *do* something. These interventions often involve compliance issues and schools that are struggling to be functional; for example, a school with financial problems might be told to undergo an external audit. A study by SRI International examined "corrective actions" taken by authorizers, including not only revocation and non-renewal but also probationary measures; they found that such corrective actions were most often related to fiscal or management issues (SRI International, 2000). Direct interventions linked to the educational program appear less common, but do occur. For example, in Arizona, the State Board of Education required all schools it had authorized that had average test scores below the 35th percentile to provide information explaining these scores. (Note 6) While direct interventions happen, indirect interventions seem far more common. These often take the form of discussions about problems between school and authorizer staff, including problems around issues such as staffing, curriculum, test scores, and goals.

Finally, authorizers seek to find a middle ground by providing schools with technical assistance or other capacity-building measures with the hopes that the increased capacity will result in higher achievement and better functioning organizations. Technical assistance can include professional development or, more often, suggestions of where to turn for professional development. Another form of capacity-building is to send external reviewers to schools, with the expectation that they will provide summative evaluations and formative evaluations that offer suggestions and insights that school personnel might find useful. This form of review has been used since the beginning in Massachusetts, and has also appeared in a variety of other states. For example, one California charter school authorized by a district that is very focused on test scores and student achievement experienced declining scores. The district responded by providing an external review designed to offer suggestions for improvement. Finally, authorizers can work to build capacity among parents for making good choices (i.e. through providing information), attempting to improve quality through improving parental decisions in the educational market.

One of the challenge of technical support designed to help schools improve themselves, however, is similar to that faced by states and districts trying to reform "under-performing schools"—it is not always clear to either authorizers or schools what exactly is needed to improve performance. This challenge of an "unclear technology" (Tyack, 1993) is obviously not unique to the charter context, but it may be exacerbated by the separation between charter schools and other entities that may be in a position to support change and provide expertise (i.e. school districts). As Elmore and his colleagues comment, "performance-based accountability systems depend heavily for their success on whether school administrators, teachers, parents, and students know *what to do* to improve performance" (Elmore et al., 1996, p. 92, emphasis in original).

Attempts by authorizers to find a middle ground, some set of actions that allows them to influence charter schools without taking the undesirable step of closing them, has led to a variety of creative approaches. However, there is a serious challenge for the theory of charter school accountability in an increased focus on middle grounds and a lesser focus on contract renewal.

The way in which charter advocates have presented the idea of a performance contract is, fundamentally, as an "all or nothing" proposition. In arguing for a broad-based system of contracting, Hill and his colleagues make the case that, "Contractors who failed to provide instruction as promised, or whose students' outcomes were low and not improving as anticipated, could be fired or given an ultimatum to improve or be replaced" (Hill et al., 1997, p. 70). In addition, they argue that, "accountability only means something if there are consequences when children do not learn" (Hill et al., 1997, p. 68). The rationale behind the additional autonomy provided to charter schools is that there will be real and significant consequences if performance is not demonstrated.

If, as appears to be the case, renewal is not always (or even often) serving its intended function as a mechanism for performance accountability, the autonomy/accountability bargain on which charter schools are based is out of balance. Given the problems inherent in an all-or-nothing renewal decision, the goal is to make sure that accountability for educational performance is maintained throughout the contract by building in a range of incentives, supports, and consequences less drastic than non-renewal. The challenge is to do this without the authorizer becoming so involved in the day-to-day operations of charter schools that the autonomy that makes them distinctive is threatened.

Conclusion

Charter school authorizers, in the years since states began passing charter school laws, have had to develop a set of procedures and standards to work with public schools governed in a very different way than the hierarchical, bureaucratic method traditionally followed. While their focus has rhetorically been on school performance, they have come up against many of the challenges that the public education system has faced in determining performance and meting out rewards (continued operation in the case of charter schools) and punishments (revocation or non-renewal).

However, internal accountability mechanisms in charter schools may be compensating for the lacking external accountability envisioned by some charter advocates; internal accountability involves, "a set of productive and mutually responsible relationships among teachers, administrators, and parents, united on behalf of effective instruction for children" (Hill et al., 2001, p. iv). The charter school authorizer-charter school relationship has shown itself to be different in most cases than the traditional school-district relationship (with the most common exceptions being districts authorizing public school conversion charters). However, it has often not met the ideals of those charter advocates who envisioned a rigorous authorizer accountability system that only continued to support those schools that had unequivocally improved student achievement.

So, where does this leave us? These findings are preliminary, and other states with more explicit laws may have authorizers relying more heavily on renewal and revocation as accountability mechanisms. However, the incentive structure that is operating for authorizers described here seems likely to apply to authorizers more generally. In this environment, one could simply argue that the fundamental theory of charter schools is flawed, and thus this reform effort should be placed in the "loss column."

On the other hand, one can turn to other alternatives to support charter school accountability, such as internal accountability and the marketplace and one can focus on middle grounds, including those discussed here and others that will be created over time as authorizers grapple with the challenges of using renewal and revocation or accountability. One possibility, which has its own difficulties, would be to separate authorizers from those who make decisions about renewal. In theory, this would remove the political disincentives of non-renewal and the personal relationships that can convolute renewal decisions. However, a risk in this approach is that authorizers who have developed relationships with schools are likely the entity in the best position to assess the quality of an individual school.

Charter schools are simply one form of contracting in public education. Other forms, such as when a school district contracts directly with a private provider, may encounter similar challenges, i.e. the uncertainty of assessing quality and the reticence to invoke high stakes. However, there are some important differences. The most important such difference is that the stakes in the case of charter schools are so incredibly high. When a district contracts with a private provider, ending the contract generally does not mean ending the existence of the school. In this environment, the theory of high stakes and the actuality of high stakes for private providers may be more closely aligned. (Note 7)

In this article, I have questioned one of the fundamental elements of the charter school theory—that accountability to government can be achieved through "all or nothing" contractual arrangements. The accountability bind that this creates for authorizers seems unlikely to change. Thus, charter school advocates may be well advised to reevaluate and adjust their theory—and possibly their rhetoric and legislation—in light of the questionable value of such a heavy reliance on revocation and renewal for ensuring performance accountability. The real risk is that there will be no change in the status quo, and the ideal of charter schools as jointly accountable to the market and government for educational performance and quality will simply be lost, with the market dominating the accountability equation.

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Notes

1. Arizona and the District of Columbia allow charters of up to 15 years.
2. All states *allow* charters to be revoked or not renewed for reasons related to educational performance. However, allowing performance to be a criterion and requiring it are different things. Several states (none of which were included in the CRPE study), including Texas, Louisiana and New Hampshire, require in their legislation that schools must demonstrate acceptable levels of performance or improvement, based at least in part on test scores (Lake and Millot, 1998). It is unclear what effect this will have on renewal in those states.
3. One clear exception to this was applications submitted to the Massachusetts Board of Education, which had a more elaborate application process from the beginning.
4. The application process can include intensive interviews with prospective authorizers, site visits to potential facilities, and reviews of the intended curriculum and personnel or type of personnel to be hired.
5. This appears to be changing, at least in some cases, as more authorizers are requesting that their schools go through an accrediting process.
6. For one school that served a largely at-risk student population, the 35% cut-off point was seen as arbitrary and inappropriate as a tool for judging their success with their particular student body.

7. While charter school advocates have tended to be skeptical of public school conversions, such schools may in fact be more accountable in certain ways than "new start" schools because there is the real possibility that the charter could be removed since the school itself would continue to operate.

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Teachers Who Grow As Collaborative Leaders: The Rocky Road of Support

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Abstract

The following narratives examine three teachers over a course of ten years as they first entered teaching and began to collaborate with other teachers on curriculum. Specifically, the study examines how the teachers 1) developed as collaborators and 2) perceived elements of support from both within and outside the classroom for their collaborative efforts. The article argues that the successful collaborative efforts helped deepen their sense of agency and initiative within their teaching and, to a lesser degree, stimulated reform and change within their schools. In turn and to varying degrees, the process of collaboration supported their personal renewal in their work. The article suggests that structural support for these teachers that connected to their emerging personal practical knowledge was crucial for their development as teacher collaborators. The article concludes by suggesting how schools may be restructured to start to become sites of authentic leadership that build on the talents, meaning, voice, and knowledge of teachers.

Teachers are often viewed as sentries to change, working alone in their classroom, repeating daily routines, delivering well-worn lessons. Outside their classrooms, traditional school cultures and structures prompt these pursuits by reinforcing the present, the conservative, and the individual (Lortie, 1975; Sarason, 1982). Given these constraints, an implicit debate has emerged in the literature on school change about the anonymous teacher as an instructional leader at her or his school. One view supports the notion that teachers can develop and use capacity for initiative and change at the local level (Cuban, 1998). In this view, teachers may work critically, reflectively, and ethically (Greene, 1989) in ways that support a sense of authorship in their teaching life (Greene, 1989; Sawyer, 2001, Vinz, 1996) and change in their settings (Wasley, 1992).

Another position, however, suggests that the culture of schools often prevents teachers from following personal initiatives to work together for personal renewal and school reform (Sarason, 1982, 1990). A comparison between the work of university faculty and that of K-12 faculty helps clarify this discussion. University faculty are rewarded when they engage in inquiry that may both support new knowledge and facilitate change (a synergy between research and service). K-12 teachers, however, are rewarded by implementing curriculum that supports various state mandates, mandates which often do not align with the personal meaning that teachers find in their work.

The following study examines how three teachers (one middle school and one high school mathematics teacher and two high school English teachers) deepened their development of agency and initiative to work towards personal self-renewal and school change by collaborating with their peers. These teachers were each anonymous in the sense that they were not department chairs or members of any organized teacher groups. They also all worked in schools that may be characterized as having non-collaborative cultures.

The following questions guided this study: What did some of the teachers' collaborative structures look like over time? How did the teachers perceive contexts of support from both within and outside the classroom for their collaborative efforts? And, how did this support change at different points as these teachers' careers unfolded? The larger issue of how teachers through their own initiative can work together for personal renewal and school reform frames these questions.

Supporting Teachers Who Collaborate

A balance of conditions and elements undergird more successful approaches to teacher collaboration. These elements include school cultures, department sub-cultures, the development of meaningful content in context, and specific resources, such as time. Little is known, however, about how teachers who emerge as leaders find and structure support for their activities. In addition, little is known about how these elements may change or unfold at different points in their careers.

School Cultures

School settings with norms of collaboration greatly support teachers who collaborate (Lieberman, 1995; Little, 1982, 1993a; McLaughlin, 1993). Such norms go beyond social interaction to indicate innovation and learning "in which teachers are enthusiastic about their work and the focus is on devising strategies that enable all students to prosper" (McLaughlin, 1993, p. 94). Cultures of collaboration facilitate "a sense of mutual security and encourag[e] interpersonal and interprofessional openness" (Nias, 1989, p. 2). A number of characteristics distinguish collegial schools. Elements include teachers' frequent and concrete talk about teaching practice; frequent and honest observations of teaching; the collaborative design, research, and evaluation of teaching materials; and peer teaching and coaching of teaching practice (Little, 1982, p. 331). Key to the formation of norms of collegiality is making "development of effective instructional practices for *all students* the top priority" (McLaughlin, 1993, p. 96). Ideally, the setting supports a community of "collective responsibility—of mutual support and mutual obligation—for practice and for student outcome" (McLaughlin, 1993, p. 97).

The character of the school's collegial environment matters as it fosters mutual problem solving and planning (Hargreaves, 1996). McLaughlin (1993), states:

> teachers *within the same school or even within the same department developed different responses to similar students depending on the character of their collegial environment.* Which response a teacher chose was a product of his or her conception of task as framed and supported by a particular school or department community (p. 89).

This process involves a complex match between school and teacher goals and school support for teachers' conceptions of their meaningful practice (McLaughlin, 1993).

Department Subcultures

While these influences can take place on a school-wide level, considerable variation in levels of support and teachers' responses to students can take place on the departmental level. Leadership on a departmental level helps determine whether and how teachers collaborate (Hargreaves, 1996; McLaughlin, 1993). Indeed, subject-matter departments can create subcultures with distinct approaches to curriculum and pedagogy within the same school (Grossman & Stodolsky, 1994; McLaughlin & Talbert, 1993; Siskin, 1994). Given the subject-matter organization of secondary schools, departments can represent an important context for teacher interaction, the "most prominent domain of potential interdependence among teachers" (Little, 1993b, p. 149). The department can be the "professional community of greatest significance to teachers' norms of practice, conceptions of task, and attitudes toward teaching and students" (Siskin, 1990, as cited in McLaughlin, 1993, p. 92). The character of the departments—its norms of collegiality—plays a key role in the way teachers construct their practice and relate to students. The clarity of vision of the department can also help focus the collective and individual curriculum response to students (Ball, 1987; Ball & Bowe, 1992). Given the central position of departments to teachers' interactions, departments represent a potential to limit forms of interdisciplinary and cross-departmental forms of interaction. Little (1993b), for example, found that limited cross-departmental collaboration existed within survival-oriented departments whose teachers worked together only to secure resources for themselves.

Meaningful Content in Context

A further support for teacher collaboration stems from how well teachers perceive that the collaborative work actually has meaning for them in their work with students. While most educators support the process of collaboration for teachers, some question whether teacher collaboration is authentic or contrived (Hargreaves and Dawe, 1990), explicitly professional or implicitly communal (Huberman, 1993), and pedagogically sound or undermining of more spontaneous, idiosyncratic, and context-specific teaching methods. Huberman (1993), for example, suggests that teaching is highly context specific and personal: "To plan collaboratively...is to reduce the degree of freedom required for the multitude of context-sensitive, continuously evolving, interactive responses that many teachers call on" (p. 19). This concern assumes that teachers cannot either explicitly articulate or gain the perspective necessary to reveal their classroom dynamic, instead often engaging in a unique form of "communion." Supported by how similar teachers' teaching philosophies and approaches are and by a lack of explicit teacher reflection, this form of collaboration might serve to reinforce existing forms of teaching without promoting self-reflection or problem-solving behavior.

Related to the view of teaching as context-specific and idiosyncratic is the issue of the actual substance of the collaboration. Huberman (1993), in referring to the teacher as artisan, suggests that teachers who collaborate take a more "tool-centered" rather than substantive approach. A study by Zahorik (1987) of 52 teachers in six schools supports this view. Seventy percent of the time he found a student focus to the teachers' collaboration: materials, discipline, activities, and individualization, reflecting, in his view, an emphasis on student behavior. Collaborating teachers were less willing to discuss topics with more of a substantive teaching focus: evaluation, methods, objectives, reinforcing, lecturing, questioning, and room organization. Reasons that might encourage teachers to refrain from exchanging information about teaching strategies include the maintenance of professional respect for the core work of peers (Bishop, 1977), the tolerance of individual preferences and styles (Little, 1990), and the avoidance of arrogance (Huberman, 1993).

Many of these criticisms underlie Lortie's (1975) statement that "cooperation could be extensive outside the classroom but teachers preferred to keep the boundaries intact when they actually worked with students" (p. 193). Given that teachers receive crucial intrinsic rewards from students, teachers may wish to safeguard their student interactions, suggesting that team-teaching between teachers may be a risky and complex act. Huberman (1993) states that it is difficult for two teachers to be responsible for the same students at the same time: "The response set of one person would collide, early on, with that of the second, whose reading of the situation and whose rapid, on-line responses would necessarily be different..." (pp. 17-18).

However, many studies have shown that teachers can benefit from exposure to new forms of practice with an instructional focus that they perceive as meaningful to their students' learning (Grossman & Stodolsky, 1994; Mclaughlin & Talbert, 1993; Siskin, 1994; Wasley, 1992). One approach that might facilitate such an instructional focus in teachers' work is their examining teaching and learning situations within classrooms—the learning of new teaching knowledge within context. A contextualized study of teaching can present teachers with curriculum in relation to students—their responses and learning. In discussing this notion of learning "content-in-context," Lieberman (1995) writes that "teachers' understanding of student learning and development must grow as a result of their continuous inquiry into classroom practice" (p 22). This "experiential learning with learning related to the classroom culture" (Lieberman, 1990, p. 532) presents teachers with focused instructional inquiry and growth. Related approaches include the process approach to teaching writing, whole-language learning, cooperative learning, and the Foxfire experience (Lieberman, 1990).

Resources

Resources play a key role. One seemingly crucial resource is time for collaboration (Little, 1993a; Raywid, 1993), which may be more important than facilities or even staff development. Raywid (1993) calls time the "scarcest resource," needed for teachers to observe one another's classes, assess their work, and design curriculum, as well as to develop habits of reflection about practice (Huberman & Miles, 1984; Schon, 1984). Little (1993a) states that teacher growth "calls ...for adequate 'opportunity to learn' (and investigate, experiment, consult, or evaluate) embedded in the routine organization of teachers' work" (p. 5). A central feature of resources is their ability to build capacity for reflection feedback, and problem solving (Fullan & Miles, 1992; McLaughlin, 1993; Lieberman, 1994).

A Narrative Method

The study draws from data collected as part of a much more extensive ten-year longitudinal study of the recruitment, preparation, teaching, induction, and retention of alternate route and college prepared teachers (Natriello and Zumwalt, 1992). In the interest of space, this article presents only brief narratives of these teachers' growth as collaborators. These narratives are then subsequently used as the basis for a more analytical discussion of emergent elements of support for these teachers.

A narrative method was selected to allow for the study of continuity in the lives of the individual teachers. Both descriptive and explanatory narrative (Polkinghorne, 1988) were used. In descriptive narrative the purpose is "to produce an accurate description of the interpretive narrative accounts individuals or groups use to make sequences of events in their lives or organizations meaningful" (Polkinghorne, 1988, pp. 161-162, as cited in Clandinin & Connelly, 2000, p. 16). In explanatory narrative, "the interest is to account for the connection between events in a causal sense and to provide the necessary narrative accounts that supply the connections" (Clandinin & Connelly, 2000, p. 16). A narrative approach was used to attempt to capture some of the richness and nuances of meaning, as well as ambiguity and dilemma, in human affairs (Carter, 1993). Narrative places an emphasis on the connections between what humans think, know, and do as well as the reciprocal relationship between the way that human thinking shapes behavior and knowing shapes thinking" (Behar-Horenstein & Morgan, 1995, p. 143).

The study relied primarily upon participants' self-reports of their work and subsequent discussion of narratives constructed from surveys and interviews. Participants were presented with four surveys and four semi-structured interviews over the first six years of the study and four additional semi-structured interviews over the following four years. The interviews were the same for both respondents with the exception of follow-up probes and prompts.

In addition to the interviews and surveys, the three teachers were given a reconstructed narrative of their history as collaborators in the classroom over their first ten years of their teaching lives. Special care was taken to ensure that the reconstructed narrative was faithful to the teachers' situation and their perceptions of their history. The data in these narratives were drawn from existing interview, survey, and observational data. These narratives were developed by the researcher and presented to the participants initially in written form in advance of an in-depth conversation with them about their collaboration history. This process allowed participants to examine and reflect on the reconstructed narratives before discussing their history as collaborators with the researcher. The written and spoken narratives allowed the three teachers to check, challenge, and/or contribute to the narrative. Through this process, the participants interpreted the data and discussed their view of how their collaborative life had been composed.

Constructing the narratives from data as it emerged year by year allowed first for the viewing of development as it unfolded, not recalled from a distant vantage point filtered through a veil of increased experience. The subsequent discussion by the researcher and the participants of the reconstructed narratives allowed for a more analytical discussion of the events and the meaning of their history as collaborators. Thus, narrative was both "phenomena under study and method of study" (Clandinin & Connelly, 2000, 4).

Data analysis

The data in this study were analyzed in a multi-step process, with their reconstruction into narratives as the basis for a discussion between the researcher and the participants. Following the discussion of the narratives, the data-analysis process was repeated again with the subsequent data.

The data analysis process took the form of a series of compressions (Huberman, 1995; Merriam 1988; Yin 1989) in the search for patterns (Bernard, 1994). The data first moved from edited initial interview, to secondary coding table, to primary coding table. The researcher analyzed the data by hand, holding "a conversation with the data" (Merriam, 1988, p. 131), in which he jotted down general thoughts and reflections and searched for regularities and patterns to transform into categories.

The interviews were organized (or chunked") into "meaning units" and placed on the secondary coding table. Each meaning unit was a direct quotation from the interview (Huberman, 1995). Care was taken to maintain data integrity, contextualization, and narrative sequence of the responses. Data were, therefore, entered in these tables in chronological order in the smallest chunk possible, which still provided adequate contextual information. The secondary code (or codes) assigned to the meaning unit was then given to each meaning unit. These codes used key words from the initial quotation, in essence "low inference snippets" (Huberman, 1995), to keep the code as faithful to the data as possible.

The third step in the data analysis process was the assignment of the primary codes. The primary codes were developed by grouping together and then organizing into patterns and themes the secondary codes. The name of an emergent overarching theme would then become a primary theme. Following Yin's suggestion that a theoretical orientation can guide the analysis (1989), the primary coding tables were organized under research question into categories related to elements of support found either inside the classroom or outside it. Finally, the interviews were read again to identify additional and possibly stronger examples of such themes and patterns as well as to search for irregularities and contradictory cases (Huberman, 1995; Merriam, 1988).

Contribution

Few studies have systematically examined how teacher collaborators have arranged elements of support over time for their collaborative work. Furthermore, few studies have examined how school culture—either conservative or more progressive—intersect over time with independent teachers who go about establishing collaborative arrangements for themselves. However, findings from the limited number of participates are not offered as a basis for the formation of generalizations, but rather as a demonstration of plausibility (Behar-Horenstein & Morgan, 1995). As Carter states, "Generalizations of this latter form are…explanatory propositions with which we can make sense of the dilemmas and problematics of teaching. (1993, p. 10). The contribution is "intended to be the creation of a new sense of meaning and significance with respect to the research topic than it is to yield a set of knowledge claims (Clandinin and Connelly, 2000, p. 42).

Unfolding Collaboration

The following three narratives briefly describe the collaborative activity in which Marilyn, a middle-school mathematics teacher, Ellen, a high school mathematics teacher, and Susan, a high school English teacher, engaged over ten years (including their student teaching). These teachers each entered teaching at the same time but worked at separate schools and did not know each other.

Marilyn in Mathematics

In her first ten years of teaching mathematics on the middle-school level, Marilyn engaged in a range of collaborative efforts. Her introduction to collaborative work began in her first year of teaching when she herself began to initiate a loosely structured collaboration. At this time, Marilyn and three other teachers, including a science teacher, organized a ski trip for "at risk" students. Initially, her goals were to combine her interests and talents with those of her students, while reinforcing her students' learning of mathematics in a real-life context. Marilyn envisioned that on this trip her students would at least discuss making mathematical applications (e.g., speed, distance, and angle problems) as they skied downhill, developing, in the process, greater self-esteem, academic motivation, and hands-on interdisciplinary knowledge. The other, more experienced teachers, however, did not carry-through on their intentions to inject structured interdisciplinary study into the fieldtrips. Frustrated, Marilyn alone could not have her students make the intended mathematical-science applications.

Marilyn and the science teacher continued to organize and sponsor this and other similar trips for the next nine years, though dropping their more contextual learning aspects. These fieldtrips contributed to her belief that positive social interaction could promote students' positive feelings about their class and school. In addition to these field trips, starting in her first year (and running through her ninth year) Marilyn began having a series of conversations with another mathematics teacher about developing new approaches for district-mandated proficiencies and tests.

A second form of collaboration that Marilyn engaged in from her second to her sixth years was initiated and structured by her school, not her. Examples of this form of collaboration included an interdisciplinary teacher-cohort planning team and summer curriculum committees. Marilyn found in the cohort situation, to her annoyance, the science, English, and social studies teachers banded together and did the minimum level of work they thought the administration would allow. Starting in her second year, she also engaged in summer committees that collaborated to change course proficiency lists, course outlines, departmental or district tests, and textbook adoption. Much of the work on these committees was susceptible to arbitrary last-minute administrative decisions, usually related to inadequate implementation of committee work. Marilyn thought that the cohort teams were considerably more contrived in that many of the teachers at the school had to take part in them. The administration's influence in both of these collaborations was centered more on initiation than on follow-through. This lack of follow-through played to the advantage of the cohort teams, allowing them to disregard administrative program goals. Unfortunately, the lack of follow-through was frustrating to the teachers on the textbook adoption committees, who wished that the administration would support and implement—rather than disregard, as they did—their recommendations. Still, these school-initiated situations presented Marilyn with relatively structured opportunities to learn to share and critique knowledge about teaching and learning with her peers.

Starting in her eighth year, Marilyn began a third form of collaboration. Now, both she and the school together initiated and structured a collaborative team of teachers to design a new Algebra I program to be implemented the following year. While either Marilyn or the school initiated the other two collaborations separately, Marilyn and her collaborative peers as well as the school jointly initiated and structured the Algebra I committee. The school and the teachers mutually agreed upon program goals which focused on student learning. In addition, the school gave the team greater autonomy to design the program and its follow-up evaluation based on positive impact of student learning. As Marilyn began this committee, she expressed cautious hope that the school would implement the new Algebra I Program as planned.

Marilyn thought that the collaborative process was successful in its goal of establishing an entirely new Algebra I program. Working together, the committee devised and followed a clear collaborative process. The committee began by raising explicit questions related to their knowledge of student learning, content coverage issues, course-sequence issues, and the proposed textbooks under review. They then evaluated these new textbooks by way of these questions, which were drawn from their own practice. One question, for example, was how well the books supported students' in-class use of manipulatives, such as triangles and scales and supplemental problems. The committee then designed a two-year curriculum for the new algebra program.

Marilyn thought that the committee's success in finding consensus was related to its member's camaraderie, as well as similar teaching backgrounds and general educational philosophies, within a context of mutual respect. At the end of her tenth year, Marilyn was waiting with some guarded skepticism to see if the school would follow through and implement the committee's recommendations.

Ellen in Mathematics

Teaching mathematics on the high school level, Ellen engaged in a series of collaborative arrangements in her first ten years in teaching. All of these collaborations were relatively conflict free. Interestingly, they also followed a pattern that was seemingly consistent with how she evolved as a teacher. In the classroom, she went from being relatively prescriptive in her first couple of years, to more open and experimental in years three though five, to more hands-on and experiential after her fifth year.

Ellen began her first collaboration in her first two years of teaching, in which she team-taught a basic math class with a veteran teacher. Initiated and supported by the school as an induction program for new teachers, this classroom-based collaboration benefited Ellen in a number of ways. Ellen and the other teacher had daily classroom interaction, daily shared planning and discussion time, and a complimentary sharing of experience.

From her third through sixth years in teaching, Ellen's collaborative work changed. After teaching algebra for two years, she saw a need to change the sequence of mathematics courses, to place a beginning geometry course between the first two algebra courses. This collaboration was marked by a sense of mutuality of interest between Ellen and the school, initiated by both the school and Ellen, organized around specific task goals, and, for Ellen at least, relatively focused on classroom-based knowledge of student learning. Unlike the type of collaborative work beginning in her sixth year, the committee outcomes were relatively consistent with Ellen's then current approaches to teaching. This collaboration never encouraged her explicitly to examine or challenge her assumptions to teaching and learning. The following year, the school implemented the sequence of mathematics courses in agreement with her recommendations.

In her sixth year of teaching, Ellen began to realize that the district-set midterm exam in geometry was focused on students' basic recall knowledge and basic skills. She knew that the test had to be changed, but wasn't sure how. Getting district permission, she and a mathematics teacher from the same district but a different school, began to plan a new assessment program which facilitated students' performance-based learning.

This collaborative work was similar to that of the previous ones in that it was focused on established course curriculum and allowed Ellen to work with people she knew and liked. It differed from previous efforts in that Ellen showed much greater initiative and experimentation. Also, the process of the collaboration encouraged her to challenged and change many of her teaching practices, if not teaching beliefs. There was now more clear oversight of the process, more conscious experimentation, more recognition of the student-context to the assessment format, and more reflection routinized into the collaborative process.

She and her partner approached their collaborative goals by first clearly establishing a rationale related both to district goals and student-learning considerations. In working together, they focused on changing approaches to mathematical format, rather than content. The projects they devised for students built on student creativity and critical thinking skills related to problem-solving processes more than products. Ellen and her partner consciously built oversight and reflection into their collaborative process, viewing the first year of the new program as a pilot program. In devising their new midterm collaboration, Ellen and her partner developed a systematic approach to evaluate each other's knowledge of teaching and learning, including the use of classroom artifacts and an explicit discussion of how students in their classes learn. Sharing a sense of creativity with her partner, she and the other teacher began to examine ways of teaching that were very different from how they had both taught in the past.

While a stated district goal of the collaboration was the implementation of the new math assessment program, Ellen downplayed the importance of greater school or district implementation to her feelings of satisfaction with the collaboration outcomes. This collaboration ended positively with the school implementing and establishing their new assessment program as an optional midterm exam. Ellen and her partner made plans to review the midterm program in its second year.

Susan in English

Susan took part in a number of collaborations with her peers. While these collaborations initially were somewhat distant from her classroom (e.g., a school accreditation evaluation), they eventually came to reflect her interests and influence her curriculum.

In her first two years of teaching, Susan engaged in three school-initiated collaborations, activities which every teacher was required to join. In one effort, she took part in a Middle States School Evaluation. Susan later dismissed this work as obligatory and meaningless. A second effort was a cooperative teaching situation in which she worked with a writing-lab teacher at her school. She thought the lab presented her and her students with an opportunity to change their approaches to the writing process, promoting a process of more substantive revision to increase the depth of content within their compositions. And in the third early collaboration, Susan attended a hands-on workshop on "advanced teaching strategies." After attending this workshop, she began to design her lessons in relation to the four student learning styles discussed at the workshop.

In her third year, Susan took a one-year sabbatical in order to earn a Master of Arts in Teaching degree at a prestigious Ivy League university. Back at her school, she wished to implement her master's thesis, an effort which led to her establishing an English/history interdisciplinary humanities program with a history teacher. Susan initiated this beginning period of collaboration, unlike the earlier one that was established by the school. Conceived of as a pilot program, it may also be distinguished from the following one by its emphasis on reflection and change.

Before actually beginning to work together, they discussed how they would do this and what their collaborative goals were. They decided that they would actually team-teach in a blocked class, twice as long as a regular class. They also established a daily shared preparation time, which let them monitor the class, anticipate directions and needs, develop foresight, and reflect on the process. While buoyed by a number of successes in this class, their reflection focused on perceived issues in the class. After the first year, they thought that this approach was too focused on the lockstep chronology of history, with the social studies curriculum dominating the English curriculum. This reflection led them to add a year-in-review project in the second year to make the course less doctrinaire and routine. In this project, each student adopted a year as the focal point for a detailed project. This project then formed much of the curriculum as the students presented it to the rest of the class.

Susan then took another sabbatical to study writing. When she returned to her school, she continued to teach and develop the interdisciplinary humanities course. During this year, Susan and the history teacher continued to teach and meet together as in the initial two-years of the program. They discussed their curriculum in relation to a framework which considered teaching-and-learning aspects of their course: a desired balance between presenting students with a defined course structure and promoting their independence, imagination and creativity; and the use of student work to promote student creativity and curriculum ownership.

This time period in her humanities collaboration was marked by a number of characteristics. First, she and the history teacher established a reflective process which was focused at times on relatively nuanced classroom specifics and at times on the way that school structures could either support or hinder the humanity course's sustainability. For example, they wondered how to promote the institutionalization of their program within the school as well as how their program could change the culture of their school. Also at this time, a conflict arose between Susan and her partner's efforts to institutionalize the program and the growing hostility of the school to it, creating in Susan's words, a "systemic nightmare" to it. The intersection of these situations led them to a decision to terminate the program. Ironically, this experience prompted her to realize that to become the teacher that she wished to become, she would have to find a new school in a new system. As Susan stated in her last year of teaching, "You need an entirely new system…Ironically, I couldn't stay in that system. And I can't go back to that system."

Teachers' Elements of Support for Collaboration

The particulars of these three teachers' collaboration with their peers differ. Similar patterns, however, appear in their perceptions of support for their collaborative work.

Personal Characteristics

Personal characteristics played an important role in how these teachers emerged as collaborators. Each of these teachers shared an overriding concern for the learning of all of their students. Each teacher brought about collaborative situations that reflected personal questions about teaching and learning. Each teacher was willing to expose her own work to public scrutiny, and each believed (to different degrees) in experiential learning. Each teacher thought that being able to select her collaborative partners was crucial. By their sixth year in teaching, each teacher had developed peer selection criteria involving complementary (e.g., educational philosophy and views of student learning) yet contrasting (e.g., different approaches to practice) elements. And, each teacher thought that a shared philosophy of teaching and learning was more important to her collaboration than a shared approach to teaching.

Structured Approaches to Critiques of Practice

Perhaps the strongest level of support that these teachers found to motivate their collaborative work was their awareness that this work was directly helping them to improve their classroom instruction for all their students. Reluctant to talk about the concept of "teaching practice," each of these three teachers preferred instead to discuss more specific issues and questions of teaching and learning. A network of relationships existed between their evolving views of practice and their participation in these collaborations. A scaffolding process appeared to be at play in which at different points in their careers there was an appropriate balance between support of existing curriculum knowledge with positive tension from critiques of practice. Related to how their view of support changed over time, these critiques focused in the first year or two on preexisting examples of curriculum which they did not develop. However, by the third or fourth year, they focused more on personal examples of curriculum. This balance may be seen in their evolving process of reflection in these collaborative efforts. This process of reflection was structured to allow them to critique and question forms of practice in ways that became increasingly more centered on or more systematically critical of their evolving practice. This process is found in the collaborative work of all three cases when examined over the course of their teaching careers as a whole.

Initially, each teacher began to critique and reflect on curriculum—but in ways that did not directly expose or threaten her own curriculum. They often discussed preexisting curriculum, for example changing a course sequence, redesigning district tests, or revising existing assignments (e.g., the research paper). A possible exception to this pattern may be found in Susan's work with her establishment of the humanities program. But initially, this curriculum often had a relatively prescriptive, subject matter emphasis. At this point, they critiqued less their own practice or views, than curriculum that was relatively consistent or similar to it, allowing them to guard their still fledgling curriculum making from public inspection while possibly examining it by proxy.

As each of these teachers gained classroom knowledge and expertise, however, much of their reflection on practice consistently revolved around questions and dilemmas related to curriculum that supported their students as active learners. By their sixth or seventh year, all three teachers directly critiqued their own practice in their collaborative work, framed by questions that they drew from their work. Eventually, each teacher intentionally established collaborative frameworks within which to weigh and evaluate multiple approaches to curriculum. On a relatively large scale, for example, Susan, Marilyn, and Ellen actually established pilot programs to supply feedback for subsequent evaluation and revision of their programs, again focused on their impact on student learning. These processes then allowed the collaborators to share and generate knowledge about the same leaning context or environment. And, within this emergent context of shared-and-generated knowledge, each of these teachers and their partners developed subject content with pronounced process elements.

Evolving Notion of Subject Matter

Initially these teachers were each relatively traditional in their teaching. Over time, however, each teacher's notions of their subject matter and disciplines changed. Eventually Ellen, whose later collaborative work was confined to geometry, thought that the flexibility and relatively open-ended nature of the content of and approaches to geometry supported her work with the other teacher. Marilyn thought that the relatively fixed nature of the content and sequence of mathematics coupled with notions of multiple approaches gave her shared ground to discuss algebra with other teachers. Susan found that English easily lent itself to an interdisciplinary pairing with social studies. She did not collaborate on curriculum related to honors English, though, where she may have had a more fixed notion of coverage. They all found that criteria for standardizing testing that was becoming more open-ended supported their collaborations related to curriculum.

As they developed as collaborators, their approaches to teaching were also changing. Over time, they each began to show a tolerance for the ambiguity or the multi-layeredness of curriculum, both within themselves and between themselves and collaborative partners. In all three cases, a growth in pedagogical content knowledge (Shulman, 1987) coincided with their synthesizing from their collaboration into their curricular planing views of curriculum that they may at one time have rejected.

School Support

Each of these teachers stressed that support from the administration, department, and school was essential to her collaboration. Ellen's creative-midterm math program, arguably the most sustainable collaboration of these teachers, enjoyed the full support of her department, school, and the district (if not peers). Susan's remarkable interdisciplinary program, on the other hand, while a powerful experience for its students, suffered immensely from a hostile administration. These teachers' views of structural supports also evolved over the course of their collaborative work with their peers. Through their third to fifth year of teaching, they appreciated a greater emphasis on the direct contribution of the administration in structuring situations to support their sharing of knowledge and growth of curriculum. By about their sixth year of teaching, they each began to appreciate support from their administrators for their deeper and more personal involvement in their collaborative projects themselves, rather than that for more decontextualized innovations in teaching, innovations found, for example, in in-service workshops. A further form of administrative support was a shared sense of purpose or mission, in which the goals of the collaboration were consistent with those of the school and of specific individuals, such as the principal and curriculum supervisors.

These teachers also found that the collaborative process itself was supportive to their involvement in collaboration. While no school had a coherent program toward collaboration, certain approaches to collaboration may have fostered greater teacher involvement in this type of work. Ellen, for example, valued her sequence of collaborations, going from more-to-less administratively supplied structure, undergirded by general school support. These teachers increasingly found meaning in collaborative work that allowed them to create cycles of growth for themselves. These cycles linked personal questions about teaching and learning to peer discussion, experimentation, reflection, and the generation of new questions about teaching and learning.

The Evolving Nature of Support

As these teachers grew in experience and level of reflection, the form and amount of support that they viewed as important to their collaboration changed. Initially, they each valued collaborative support that was more one-on-one and classroom specific. In addition to meeting their initial needs as new teachers, this form of support facilitated their growth in knowledge and experience in the actual process of collaboration. By about their sixth year in teaching, however, all three of the teachers began to seek and value support for their collaborative work that was broader and encompassed the school as a complex but changeable organization. This latter form of support was more systemic and compatible with their growth in knowledge about the relationship between meaningful instruction and school culture and structures.

Discussion: Islands of Agency and Initiative

The unfolding narratives of Marilyn, Ellen, and Susan show the unique ways that they developed and acted on personal meaning in their work. Their actions at work became increasingly grounded in their developing knowledge, questions, and theories about teaching and learning. This grounded knowledge informed and was informed by the various ways that they constructed curriculum contexts to help students learn. They not only persevered in their efforts to work with their peers. They also helped to establish greater contexts of support in order to collaborate with their peers. In addition, these three teachers encountered and challenged — often with considerable personal effort — individualism, conservatism, and presentism (Lortie, 1975) inherent in school structures.

Marilyn, Ellen, and Susan's narratives suggest that collaborative goals and activities intersected with their school's culture and structure and that this intersection became more meaningful for them as they developed greater knowledge and experience from their teaching. As these teachers' personal practical knowledge of teaching (Clandinin & Connelly, 1995) developed, the relationship between their schools' structures of support and their growing personal practical knowledge became increasingly important to these teachers.

Given this backdrop, a question emerges from their narratives: Did these teachers develop a sense of initiative and agency for personal self-renewal and school change? These questions are complicated. First, each of these teachers, at least for a time, did develop a growing sense of initiative and agency in her work, both within the classroom and within her collaborations. However, the degree of self-renewal and satisfaction related to the achieved or intended outcomes of this agency was related to their perceived level of success in reaching their goals. Ellen, for example, was arguably the most successful in her collaborative work through her tenth year of teaching. Collaborating with the teacher from the neighboring school to change the midterm exam in geometry, she changed both district guidelines impacting her work as well as the curriculum she made in class. In a way, she established an island of agency for herself, basically centered on her classroom. Whether on not other teachers in her school also changed their midterm exams in response to the new guidelines did not directly affect her curriculum changes, which she could still carry out. This revision to her curriculum led to an invigorating sense of self-renewal for her in her teaching.

Susan, on the other hand, was much more ambitious in her collaborative goals. She initially developed a context to support her interdisciplinary course and then established a new program at her school. However, the relationship between her program and greater school change became increasingly problematic for her. For a time, her increased agency and initiative also led to a profound sense of self-renewal. Ironically, it also contributed greatly to her leaving the classroom to work for the charter school movement to empower teachers to start their own schools.

This difference in the career pathways between Ellen and Susan echoes findings of Martin Huberman. In his well-known study about the professional life cycle of teachers, Huberman (1989) suggests that the teachers in his study experienced multiple career paths at different stages in their teaching lives. At the end of a long teaching career, some of the teachers in his study were relatively satisfied and content with their teaching careers, whereas others experienced a sense of frustration and a lack of closure: "Depending on the previous trajectory, this final phase can be either serene or acrimonious" (Huberman, 1989, p.38). This outcome was partly related to the teachers' perception of how successful they had been in achieving their goals in teaching. Those teachers who attempted to bring about relatively large-scale change were often the most dissatisfied when retiring from teaching.

Restructuring Schools As Sites of Authentic Leadership

Authentic leadership (Evans, 1993) values "the head, the heart, and the hand" (Sergiovanni, 1992) of leadership and builds from the multiple voices and unique strengths found at a given site (Miller and O'Shea, 1992). It recognizes that teachers develop and change over the course of their careers. This form of leadership is necessary for schools to become places of self-regulated learning, not only for students, but also for teachers and other staff members—at different points along a teaching continuum from novice to more experienced teacher. While teachers who emerge as collaborators and leaders may arrange structures of support for themselves in culturally impoverished schools, these teachers often pay an emotional and professional price. Instead of supporting emergent leadership characteristics in teachers, many schools expose teachers to conditions that facilitate contrived and superficial forms of collaboration (Hargreaves & Dawe, 1990).

There are many ways for schools to value and build from the unique voices and strengths of teachers like Marilyn, Ellen, and Susan. The following elements might be included in such a consideration. It is helpful to recognize that teachers' agency, voice, and sense of meaning matter greatly to them as they work with each other and their students. Efforts to control the quality of teaching through rigid, centrally mandated accountability measures can create sites of contention for teachers.

In addition to personal efficacy, the teachers in this study were supported in meaningful collaboration by a dynamic notion of curriculum. They each realized that for curriculum to engage their students, the students must engage the curriculum. Thus they began to view curriculum as a dynamic gestalt of student input, teacher input, classroom materials, and inside-as-well-as-outside classroom contexts (Clandinin & Connelly, 1992; Sawyer, 1998; Schwab, 1978). This more open notion of content calls into question authoritarian views of what knowledge is of most worth in the classroom. Given that curriculum is a dynamic interaction, teacher support for collaboration that involves curriculum will change for each individual teacher at different points along his or her career. Furthermore, successful collaboration is itself a support for further collaboration as it deepens and extends knowledge and expertise about teaching. Schools run the risk of losing good teachers by devaluing and dismissing their meaningful collaborative efforts.

Over time and with a growth in teaching experience and knowledge, these teachers began to value structural support that facilitated their efforts to bring about not only classroom, but also program and school change. At least for a time, each of them carved out sites of personal growth and renewal, sites which included unique support structures. Ellen found professional renewal in change efforts that were primarily focused on her classroom. On the other hand, Susan's questions about student learning led her to establish an interdisciplinary program that bridged classroom walls. The degree to which the three schools helped or hindered these two teachers, as well as Marilyn, in their quest for the improvement of education for all students greatly influenced these teachers' decisions to remain or leave the teaching profession. The grounded knowledge that teachers generate and share within collaborative islands ought to support the predictable success of school reform.

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When An "A" Is Not Enough: Analyzing the New York State Global History and Geography Exam

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Abstract
Education Week's report "Quality Counts" judges New York State's curriculum and assessment policy efforts to be an "A." Surface-level reviews such as "Quality Counts" tell something about the workings of state policy, but they are more useful as snapshots than as well-developed portraits of curriculum and assessment change. In this article, I analyze the new New York State Global History and Geography standards and tests using a set of social studies-specific criteria which inquire deeply into the implications for real instructional change. From that vantage, I argue that New York's policy efforts, while seemingly well-intentioned and reflective of surface-level change, fail to promote powerful teaching and learning in

social studies. Teachers intent on producing ambitious teaching and learning will find little to interfere with their efforts. But as a set of reforms intended to encourage substantive change, the new global history test falls short.

By some reports, New York state has made considerable strides in redesigning its state standards and assessment programs. For example, the authors of Education Week's report, *Quality Counts* (see http://www.edweek.org/sreports/qc00) judge New York's efforts to be an "A." In that report, New York scored points for having new content standards in all school subjects and at elementary, middle, and high school levels; for having tests which employ multiple-choice, short answer, and extended response questions; for requiring passing state assessments for high school graduation; and for using a range of policy tools such as report cards, ratings, financial assistance, and state sanctions to encourage improved test performance.

Surface-level reviews such as *Quality Counts* tell us something about the workings of state policy, but they are more useful as snapshots than as well-developed portraits of curriculum and assessment change. Attempts to construct such portraits demand more rigorous criteria than whether a type of test item appears or not. When such criteria are applied in the context of the new New York state global history exam, it is hard to justify Education Week's lofty grade. In short, an A from Education Week isn't enough.

In this article, I do a document analysis of the new NYS Global History and Geography standards and tests using a set of social studies-specific criteria which inquire deeply into the implications for real instructional change. From that vantage, I argue that New York's curriculum and assessment efforts, while seemingly well-intentioned and reflective of surface-level change, fail to promote powerful teaching and learning in social studies. Teachers intent on producing ambitious teaching and learning will find little to interfere with their efforts. But as a set of reforms intended to encourage substantive change, new global history test falls short.

Design of the Study

Led by Patricia Avery from the University of Minnesota, several colleagues and I from universities around the U.S. developed a set of criteria by which to analyze the new state curriculum and assessments emerging in our respective states. (Note 1) Drawing on the current thinking in our field, especially as it is reflected in national standards documents (e.g., National Center for History in the Schools, 1994; National Council for the Social Studies, 1994) and state-level standards (e.g., New York State Education Department, 1998), we constructed criteria that ask to what extent the new state tests ask students to:

- demonstrate knowledge of significant concepts and issues in history and the social sciences?
- consider multiple perspectives on issues and events?
- manipulate and interpret social science data?
- engage in higher order thinking about significant social studies concepts and issues?

I operationalize these criteria in the sections which follow. Note, however, that these measures really pose two questions. The first inquires about the simple existence of each criteria listed, e.g., is there *any evidence* to suggest that students much demonstrate knowledge of significant concepts? The second question implies a quality measure, e.g., to *what degree* must students demonstrate knowledge of significant concepts? The first kind of question is not unlike those asked by Education Week, where the singular appearance or absence of a criteria is deemed important. The second kind of question pushes deeper, asking about the importance or meaningfulness of the measure. Evidence of a measure is interesting, but the extent to which that measure is meaningful seems ultimately more useful.

The prevailing pattern that emerged from my analysis can be termed, "yes, but... ." *Yes*, there is evidence of attention to the subject-specific criteria we developed, *but* inquiries into that evidence suggest that the new global exam comes up far short of a substantive change.

Background on New York State Curriculum and Assessment

In New York state, the belief that tests drive change is alive and well. But while the notion that tests matter is widely held, little empirical evidence supports a robust connection between tests and learning. In fact, Stake and Rugg (1991) argue that "in sixty years of vast international research on school testing, the policy of emphasizing test performance in order to improve education has never been validated" (p. xx). If true, it is no surprise to learn that the available research suggests that the relationship between testing and teachers' practices is complicated at best (Cimbricz, in review; Cohen & Barnes, 1993; Firestone, Mayrowetz, Fairman, 1998; Grant, in press). Tests matter to teachers (see, for example, Smith, 1991a, 1991b), but how teachers interpret and act on the import of new tests is largely uncharted ground.

That little is known about if and how tests influence teaching and learning has yet to inhibit state-level policymakers in New York (and most other states) from using them. To understand the recent changes in the state assessment program, however, one needs to consider the long history of state involvement in curriculum and testing.

New York state policymakers draw on a long history of attempts to influence classroom teaching and learning. Administered for over 100 years, the Regents testing program tests high school students on standardized, criterion-referenced exams that are tied to state-developed course syllabi in all academic subjects. In social studies, students take the Global Studies test at the end of a two-year Global Studies course sequence in ninth and tenth grades; eleventh graders take the U. S. History and Government test after completing a course of the same name. State curricula and tests also exist for elementary and middle school teachers and students.

A Mix of Old and New in New York State Standards and Assessments

The most recent changes in the state curriculum and assessments began in the early 1990s under the previous education commissioner, Thomas Sobol. Richard Mills, commissioner since 1994, continued that effort. Interestingly enough, Mills came to New York intending to decrease the traditional emphasis on standardized testing. The education reform movement Mills led in Vermont resulted in a state-level assessment program based on student portfolios rather than on tests. Mills abandoned this approach in New York, however. Sensing that the state's draft curriculum frameworks were being largely ignored, Mills reportedly asked a teacher to explain. "'You don't get it,' the teacher said, with what Mr. Mills remembers as almost a sneer. 'If the standards are not on the test, they're not real'" (Hartocollis, 1999, B1). (Note 2)

That comment apparently proved key for Mills is now an unabashed supporter of standards-based tests as a vehicle for classroom change. The *Learning Standards for Social Studies* (New York State Education Department, 1998) represent the state's latest K-12 curriculum; new tests in grades 5, 8, 10, and 11 are emerging over the next two years.

Compared with the previous round of curricular revisions in the mid-to-late 1980s, the new standards documents represent a mix of old and new. Virtually no change appears in the K-5 grades curricula, which continue to follow an expanding horizons model. There are also no discernible changes in the seventh and eighth grade U.S. and New York State history sequence, or in the twelfth grade Participation in Government and Economics courses. A modest change is evident in the eleventh grade U.S. history and government course in that a emphasis on geography surfaces. Major changes seem localized at sixth grade, where the course of study expands from Western and Eastern Europe and the Middle East to the entire Eastern hemisphere, and at ninth and tenth grades, where the emphasis has changed from a cultural approach as represented in Global Studies to a chronological, history-based study expressed as Global History and Geography.

The state-level testing program also reflects a mix of old and new. Compared to the tests in most other subjects, the new social studies assessments seem the least changed. Whereas the new mathematics, science, and English-language arts tests make liberal use of open-ended and extended tasks, the social studies exams continue to rely largely on multiple choice questions. Moreover, compared to the tests in sister subject matters, the multiple choice questions posed on the social studies exams seem directed toward lower levels of understanding.

The multiple choice questions notwithstanding, the new state social studies exams do look different from the old ones. The principal change is in the writing portion of the exam. Unlike many minimum competency tests, New York students have always had to write essays on state exams. The new tests are different primarily in the fact that a) students will no longer have a range of essay prompts to choose from, and b) a new kind of essay question, a document-based question (DBQ), is being introduced on each of the fifth, eighth, tenth, and eleventh grade tests. (Note 3) A DBQ asks students to write an essay synthesizing information from as many as eight primary source documents (e.g., short quotes from government documents and famous individuals, political cartoons, poems, charts and graphs). The DBQ from the Global History and Geography exam administered in June, 2000 is as follows:

> *Historical context* : Economic systems attempt to meet the needs of the people. Capitalism and communism represent two different ways to meet people's economic needs.
>
> *Task*: Using information from the documents and your knowledge of global history, answer the questions that follow each document in Part A. Your answers to the questions will help you write the Part B essay, in which you will be asked to:
>
> Describe how these two economic systems attempt to meet the needs of the people
>
> Evaluate how successful each system has been at meeting the economic needs of the people

This task is followed by eight documents, seven quotations (e.g., R.W. Emerson, Adam Smith, Friedrich Engels) and one political cartoon, which present contrasting views of communism and capitalism. One or two main idea questions accompany each document. An example of a document and the attendant question follows:

> ...masses of laborers…crowded into factories. They are slaves of the machine and the manufacturer. Instead of rising as industry progresses, they sink deeper and deeper into poverty… Karl Marx and Friedrich Engels, *The Communist Manifesto*
>
> The attendant main-idea question is: "According to Marx and Engels, what was the effect of the capitalist factory system?"
>
> After responding to short answer questions such as this, students are directed to:
>
> - write a well-organized essay that includes an introduction, several paragraphs, and a conclusion
> - use evidence from at least *four* documents to support your response
> - include additional related information.

High school students will also write a second, "thematic" essay based on a single prompt. The thematic essay from the June, 2000 Global History and Geography exam is:

Write a well-organized essay that includes an introduction, several paragraphs addressing the task below, and a conclusion.

Theme: Justice and Human Rights--Through history, the human rights of certain groups of people have been violated. Efforts have been made to address these violations.

Task:

- Define the term "human rights"
- Identify two examples of human rights violations that have occurred in a specific time and place
- Describe the causes of these human rights violations
- For one of the violations identified, discuss one specific effort that was made or is being made to deal with the violation.

Students are then advised:

You may use any example from your study of global history. Do not use the United States in your answer. Some suggestions you might wish to consider include: Christians in the early Roman Empire, native peoples in Spain's American colonies, untouchables in India, blacks in South Africa, Jews in Nazi Germany, Muslims in Bosnia, Kurds in Iraq or Turkey, or Tibetans in China.

Each of the two essays is scored by two classroom teachers on a 6 point rubric, from 0-5. On the DBQ above, a score of 0 "fails to address the task or theme, is illegible, or is a blank paper." By contrast, a score of 5:

- addresses all aspects of the task by accurately analyzing and interpreting at least four documents
- thoroughly describes and evaluates capitalism and communism
- incorporates information from the documents in the body of the essay and may cite from the document in an appropriate fashion, but does not copy the entire document
- incorporates relevant outside information such as the early British factory system, Stalin's five-year plans, collapse of communist system in the Soviet Union
- takes into account the point of view of the authors in the description and evaluation of capitalism and communism
- is a well-developed essay, consistently demonstrating a logical and clear plan of organization
- introduces the theme by establishing a framework that is beyond a simple restatement of the task or historical context and concludes with a summation of the theme

Scores between a 5 and a 0 reflect lesser attention to each of the points above. For example, under a score of 3, the third point states, "incorporates limited or no relevant outside information."

Once the tests have been corrected, teachers are directed to a conversion table on the back cover of their manuals. There, they total a student's multiple choice and short answer scores (total of 61 possible points) and then look across a series of columns from 0-10, which represent the least to most possible points on the two essays. At the cross-section of these two scores is a converted score which ranges from 0-100. In the past, students had to score a 65 in order to pass the exam. A 65 is still the targeted state score, but districts are allowed to lower the required passing score to 55 for the next couple of years.

If the new tests themselves are only modestly revised, two other changes seem more dramatic. One is that the new fifth and eighth grade tests will mirror the high school exams in form and will produce individual student scores. Previously, tests at those levels, termed "Program Evaluation Tests," were general knowledge exams aimed at helping teachers understand the effectiveness of their content and pedagogical decisions. The shift to Regents-like tests and individual student scores at lower grades seems intended to raise the stakes of these tests by tying them more directly to the high school Regents exams. The second change concerns the function of the Regents test. In the past, passing Regents tests in all academic subjects meant that a student earned a "Regents" diploma, a distinction of some note. Students who desired to could opt to take the less rigorous Regents Competency Exam (RCT) and earn a local diploma. Beginning in 2001, ninth graders will no longer have these options. The RCT is being phased out, and all students will have to pass five Regents examinations (English, mathematics, global history, U.S. history, and science) in order to graduate.

"Yes, But... .": Analyzing the NYS Global History Exam

By most any measure, NYS policymakers deserve credit for the curriculum and assessment revisions they have made. They might have taken a less ambitious route by leaving the state curriculum and tests largely unchanged or by reverting to a minimal competency exam. Since they did not, Education Week's grade of A may well be justified. But if the criteria applied are more rigorous and more specific to the subject matter of social studies than those used by Education Week, then other interpretations of the new standards and assessments seem valid.

Recall that I analyzed the NYS Global History and Geography exam by asking to what extent the new state tests ask students to:

- demonstrate knowledge of significant concepts and issues in history and the social sciences?
- consider multiple perspectives on issues and events?
- manipulate and interpret social science data?
- engage in higher order thinking about significant social studies concepts and issues?

Recall also that I split this question in two. First, I looked for the mere existence of each criteria. Second, I inquired about the quality of the evidence for each criteria. My analysis suggests that while evidence for each of the criteria can be found, in no case is the quality or meaningfulness of that evidence strong. In short, the answer to each question is, "yes, but... ."

Knowledge of Significant Concepts and Issues

To be sure, there is a whole lot of knowledge represented on the new global history exam. This claim prompts little surprise, however, given the scope of the course title (i.e., "*Global* history and geography"), the 27 single-spaced pages of the state curriculum, and the fact that the course is taught over two school years. A quick review of the curriculum and test suggests apparent attention to significant concepts and issues: Geographic influences, religious beliefs, economic systems, political forces, cultural practices, and international relations map across an array of developed and developing, ancient and modern civilizations.

Yet even a surface-level analysis begins to yield some problems. For while the testmakers develop items for a wide range of concepts and issues, a quick count of the multiple-choice questions offers some troubling patterns. One pattern is that questions related to western nations (i.e., Europe, including Russia/USSR) dominate the test: Twenty-four questions assess issues relevant to the west, while only 10 questions each are assigned to India/Asia and to the rest of the world (Africa, Latin America, Caribbean, South America, and the Middle East). (Note 4) A second pattern is that the numbers of questions related to early civilizations (8 questions) and the middle ages (9 questions) are notably subservient to those attached to the modern era (31 questions). (Note 5)

This latter pattern could be predicted for two reasons. One is that historians and social scientists know more about modern times than the past, so to see that truism reflected in the apportionment of test questions is no surprise. The second reason is that the state curriculum gives preference to the modern era (18 pages) over early (6 pages) and middle (3 pages) periods. Since the test is reputed to reflect the state social studies standards, it makes sense that the ratio of questions would reflect the chronological preferences established in the curriculum.

The first pattern is harder to understand, however. First, the clear preference for western-based questions flies in the face of the national movement to be more inclusive of other cultures. While the debate over multiculturalism has been contentious, it is hard to understand why the testmakers would so clearly privilege western history. This action is also hard to understand from a curricular point of view. While New York policymakers' efforts at creating a multicultural curriculum have been variously praised (Cornbleth & Waugh, 1995) and excoriated (MacDonald, 1992), the rhetoric in the social studies standards appears to support a strong endorsement of a *global* perspective:

> This curriculum provides students with the opportunity to explore what is happening in various regions and civilizations at a given time. In addition, it enables them to investigate issues and themes from multiple perspectives and make global connections and linkages that lead to in-depth understanding. (New York State Education Department, 1998, p. 71)

The decision to emphasize questions related to the west is especially difficult to defend when one realizes that within each of the chronological units described in the state standards is attention to western *and* non-western people, events, and issues. For example, the unit entitled, "Global Interactions (1200-1650)," is divided into four sections, two of which--Early Japanese History and Feudalism and The Rise and Fall of the Mongols and Their Impact on Eurasia--are explicitly non-western. (Note 6) European issues and events do dominate the later units as world and cold wars get heavy play. That said, on the relationship between the west and the rest of the world, the disparity between the state standards and the state test is stark.

The disparities between the nations and eras represented and between the state curriculum and exam are interesting, but really do not help us understand whether the concepts and issues portrayed are *significant*. But then what constitutes a significant event turns out to be a pretty thorny issue, both for historians (see, for example, Carr, 1961) and for students (Barton & Levstik, 1997, 1998; Grant, 2001; Seixas, 1994, 1997). One might debate the relative merits of questions related to Karl Marx v. Ho Chi Minh, but it seems that with few exceptions the test addresses the big ticket items of a standard account of global history.

And that's part of the problem. The disparity in questions between western and non-western nations notwithstanding, the real issue related to significance is the type of questions asked rather than the content. In short, test makers aimed at low-level knowledge questions rather than at higher-order thinking questions. As a case in point, consider this multiple-choice question:

The Magna Carta, the Glorious Revolution, and the writings of John Locke all contributed to Great Britain's development of:

1. absolute monarchy
2. ethnic rivalries
3. parliamentary democracy
4. imperialist policies

Typical of the multiple-choice section, this question reflects an emphasis on generally expected, and clearly western constructs and events. But while the significance of these elements to global history is undeniable, the question merely asks students to identify and label them. I address this notion of insignificant questions about significant events more directly in succeeding sections. For now then, my analysis suggests that, yes, the new state global exam does demonstrate attention to important concepts and issues, but does so in a way that may not push students' thinking.

Multiple Perspectives

The criterion of the extent to which the new state test addresses multiple perspectives is another case of "yes, but... ." While the inclusion of the DBQ indicates a move toward multiple views, that move is less apparent in the multiple choice section than one might expect. Moreover, the heavy tilt toward western themes undercuts the range of perspectives possible.

Several multiple-choice questions appear to reflect diverse perspectives because they give students multiple pieces of information. On closer inspection, however, all but two questions present compatible rather than diverse viewpoints. Typical of this kind of question is the following:

> Base your answer to question 10 on the statements below and on your knowledge of social studies.
>
> - *Statement A*: The might of a country consists of gaining surpluses of gold and silver.
> - *Statement B*: A nation's strength is found in economic independence and the maintenance of a favorable balance of trade.
> - *Statement C*: We need to gain colonies both a sources for raw materials and as markets for our manufactured goods.
>
> Which economic system is being described by these statements?
> 1. traditional
> 2. feudal
> 3. command
> 4. mercantile

Students read three different statements, but each statement is necessarily tied to the others as a vehicle for defining mercantilism. Rather than dealing with multiple perspectives, then, students must only deal with multiple pieces of information. (Note 7)

The two multiple choice questions which do ask students to untangle multiple views employ the same stem:

> Base your answers to questions 46 and 47 on the speakers' statements below and on your knowledge of social studies:
>
> - *Speaker A*: The gods approached Vishnu, the lord of creatures, and said: "Indicate to us that one person among mortals who alone is worthy of the highest rank... " Vishnu reflected, and brought forth a glorious son who became the first king.
> - *Speaker B*: The traditional African society, whether it had a chief or not, was a society of equals and it conducted its business through discussion.
> - *Speaker C*: Ideally, the best form of government is one where every citizen not only has a voice, but also, at least occasionally, is called on to take actual part.
> - *Speaker D*: A monarch's authority comes directly from God, and this is how the leadership and power in a society should be

determined.

46. Which speakers would support the theory explaining the power of France's Louis XIV, Spain's Philip II, and England's Elizabeth I?

1. A and D
2. B and C
3. A and C
4. B and D

47. Which speakers would agree with the idea that some form of democracy is the best way to govern a society?

1. A and D
2. B and C
3. A and C
4. B and D

One could quibble with the fact that the four statements represent only two views of government, but that really is a quibble. The questions might have been worded more clearly (especially #46), but the point remains: Students must be able to sort through differing views of government in order to make sense of the questions posed.

What seems like a similar quibble above rises to the level of critique in the DBQ. The eight documents divide cleanly into four categories: those that support capitalism (an excerpt from an unidentified work by Ralph Waldo Emerson; an excerpt from Adam Smith's *Wealth of Nations*), those that support communism (a quote attributed to "Katia," a 16-year-old ninth grader from Moscow in the 1980s; an excerpt from Friedrich Engels, *Principles of Communism*; an excerpt from Harry Schwartz in *The New York Times*, 1952), those that critique communism (an excerpt from, "The Peasant Wars on the Kremlin," by T. P. Whitney; a political cartoon from the Providence *Journal Bulletin*), and those that critique capitalism (an excerpt from *The Communist Manifesto* by Marx and Engels). (Note 8) Those who would question the documents selected would rightfully emphasize the clean lines of support for and critique of each system. There is no gray area here, for depending on the source, capitalism and communism are either portrayed as sin or salvation. In the first part of their essays, students are asked merely to describe how each system attempts to meet its citizens' needs. Since five of the eight documents provide clear fodder for this task, it hardly seems a significant challenge. The second task, to evaluate how successful each system has been in meeting its citizenry's needs, seems more cognitively provocative. Here, students would presumably draw on the documents which critique each system. But notice what is missing: Students are provided only with partisan critiques. No data appear, for example, on how citizen-workers have fared under the respective systems. Presumably, students will draw on their knowledge that some countries like the former Soviet Union have renounced communism. But without more and better data, and especially data that offers direct comparisons, it is difficult to see how students can do much with this task.

Those who would defend this DBQ might counter that even a weakly constructed DBQ offers a profoundly different task than students normally undertake on a standardized test. That so much of the testing in social studies relies on multiple-choice questions has long been a sore spot among social studies educators. Clearly, this DBQ offers a new opportunity for assessing students' knowledge and skills.

Taken together, these points underscore the "yes, but..." argument about the new global exam. Including a DBQ ratchets up the substance of the test and begins to promote the notion of multiple perspectives. But the strength of that claim is undercut by what, with seemingly little effort, could have been a more powerful experience. Substituting documents that presented more nuanced views of capitalism and communism and that presented some comparative data would have gone considerable distance in beefing up a fledgling effort.

Manipulating and Interpreting Social Science Data

As noted above, the authors of the DBQ could have enhanced the student tasks by including some comparative data. Doing so would have contributed greatly to the generally weak way that social science data are handled on the global exam.

The types of questions represented on the new test generally call for definitions of terms (e.g., limited monarchy, totalitarianism, NAFTA) and identification of people, events, and social trends (e.g., Napoleon Bonaparte, French Revolution, democracy in Latin America). Few questions probe much below a surface-level knowledge of global history. And of those questions, a mere handful deal with social science data. To be sure, there are questions which employ illustrations, political cartoons, and maps. None of these, however, qualifies as data in the sense that students are presented with information that they must manipulate and interpret in order to answer the attendant questions. Of the 50 multiple choice questions, then, only three call upon students to use data. One question presents students with two circle graphs of the world population by region. The first graph shows the distribution for Europe, China, Latin America, North America, India, and four other areas in mid-1992; the second graph projects the distribution for the same regions in 2025. Two questions follow:

Which factor best explains the projected change in China's population by 2025?

1. increased immigration to China
2. religious doctrines discouraging birth control
3. government limits on family size
4. increased agricultural production in China

Which conclusion about world population in the next 25 years is best supported by the information in these charts?

1. Technological improvements will cause a population decline throughout Asia.
2. Developed nations will be home to a majority

of the world's population.
3. Efforts to curb population growth in developing nations will be successful.
4. Africa may experience problems with overpopulation.

A few questions later, students encounter a chart describing Internet usage in countries across the world. Three categories of usage along with representative countries are listed. For example, "heavy usage" countries include Canada, Norway, and the United States; "medium usage" countries include Chile, Britain, and Argentina; and "little use" countries include Mexico, Columbia, and Saudi Arabia. One question follows:

> Which conclusion about Internet usage can be drawn from this chart?
>
> 1. Developing nations have easier access to the Internet than developed nations do.
> 2. A high standard of living in a nation is linked to high Internet usage.
> 3. Internet usage limits international cooperation.
> 4. Eastern Hemisphere nations use Internet connections more than Western Hemisphere nations do.

The final data-based question features a web diagram of automobile production using straight lines and arrows illustrating the global connections between auto companies and the countries in which they originate. For example, Chrysler/USA is connected by a straight line to Renault/France and to Hyundai/South Korea and by an arrow to Mitsubishi/Japan. The distinction between straight lines and arrows is not explained. One question follows:

> Which conclusion can be drawn about global economics in the 1990s?
>
> 1. Countries became more economically isolated.
> 2. Higher tariffs reduced trade between nations.
> 3. France dominated the world automobile industry.
> 4. Economies of the world were increasingly interdependent.

These questions meet the ostensible parameters of data-based situations: Students are presented with some data from which they must infer trends. That said, there are at least two problems with these questions. One problem is that students need not manipulate any of the data in order to answer the attendant questions. Students must make an interpretation, but in all cases the "right" answers are fairly obvious.

The reason the answers are so obvious speaks to a second problem: Not one of the questions demands much in the way of prior social studies knowledge. In short, the questions are cast such that only one answer makes common sense. Consider just two examples. First, without knowing anything about China, the question about the projected change in its population can only be reasonably answered with response #3 since it is the only answer which explains a declining populace. The answer to the question about global economics is just as commonsensical. The only response consistent with the web-like diagram is #4 which features the language of "increasingly interdependent." (Note 9) True, students need to know the vocabulary used--population, interdependent, and the like--but these are hardly arcane words used only in social studies contexts. So while students are asked to make inferences from the information presented, not only are they low-level inferences at best, but the possible answers are phrased such that the answers are obvious.

Once again, then, the surface-level qualifications of the NYS global exam pass muster, but a peek below that surfaces undercuts any confidence in the A grade assigned by Education Week. As with each of the preceding criteria, the new test fails to push students' thinking in substantive directions. The appearance of asking students to manipulate and interpret data is not enough.

Higher Order Thinking

It is probably clear by now that this last criteria, the extent to which the new test asks students to engage in higher order thinking about significant social studies concepts and issues, lies at the heart of my critique. The test makers can legitimately claim *some* attention to each of the preceding criteria. On the level of that attention, however, reasonable objections can be lodged. I will not speculate as to why the exam was constructed in this manner, but that it came so close to being a rich experience for students only to fail, is discouraging.

Consider two examples of how the exam questions might have been enriched. I argue above that the DBQ is composed entirely on partisan views of capitalism and communism. A small, but significant improvement would be to substitute a graph offering descriptive data on the comparative economic productivity and/or the social service conditions of the two nations. Such an addition would not only expand the range of documents students consider, but it would also help them make a more reasoned response to the portion of the essay prompt that calls for them to "evaluate how successful each system has been at meeting the economic needs of the people."

The multiple choice questions might also have been improved. Consider this example from the 1994 NAEP Geography Assessment (National Assessment of Educational Progress, 1994):

Statistical Comparison of Two Countries

	Country A	Country B
Total Population	7,193,000	123,120,000
Urban-Rural Urban Rural	 49.0% 51.0%	 76.7% 23.3%
Religions	Rom. Cath.:92.5% Baha'i: 2.6%	Shinto*: 89.5% Buddhist*:

	Other: 4.9%	76.4% Christian: 1.2% Other: 9.3%
Life Expectancy at Birth (years)		
Male	50.9	75.9
Female	55.4	82.1
Age Distribution		
Under 15	43.4%	19.0%
15-29	26.4%	21.6%
30-44	15.7%	22.4%
45-59	9.3%	20.1%
60-74	4.4%	9.2%
over 74	0.8%	7.7%
% of the Population over 25 with No Formal Schooling	48.6%	0.3%
Leading Exports (as % of total exports)	Natural Gas: 21.0% Tin: 12.0% Zinc: 5.7% Silver: 5.6% Antimony: 4.0% Coffee: 2.0% Sugar: 1.5% Hides: 1.4%	Motor Vehicles: 18.4% Machinery: 10.9% Iron and Steel: 5.8% Chemicals: 5.3% Textiles: 2.6% Vessels: 1.5% Radios: 0.8% Televisions: 0.7%
		(*Some persons practice both religions.)

Which of the following statements most accurately describes Country A?

- A. It is dependent on raw material exports.
- B. It probably has a high literacy rate.
- C. It has a predominantly urban population
- D. It will experience slow population growth.

Which of the following statements most accurately describes Country B?

- A. It has few medical facilities.
- B. It is industrialized.
- C. Its primary imports are manufactured goods.
- D. Its population is primarily employed in agriculture.

Country B is most likely
- A. Botswana
- B. India
- C. Ireland
- D. Japan

Like the questions on the NYS global exam, these examples require understanding of significant social studies terminology. Unlike those questions, however, these examples push students to do more than define those terms. The first two questions demand that students evaluate the data in each cell and to draw conclusions across those cells. For example, in the first two questions, each of the possible answers directs students toward at a different cell of data. To select the best answer, then, a student must evaluate the information across the chart. The third question also asks students to look across multiple cells, but it adds a twist: Students must compare their assessment of Country B's attributes with their previous knowledge of world countries in order to select the best response.

These two brief examples point to the possibilities missed on the current exam. It seems safe to say that the bulk of the new global exam aims at low-level knowledge and understanding. The majority of the objective questions call for defining terminology, identifying significant people, places, and events, and in the case of the short answer section, describing the main point of a document. Surprisingly, the essays push no harder. The thematic essay asks students to complete several tasks, but by giving the students numerous examples of human rights cases, it is difficult to imagine many students struggling. The DBQ seems similarly poised. Students must synthesize the views from eight different documents, but there is no nuance in any of them and the clean divisions among them play directly into the tasks to which students are assigned. Taken together, the array of questions on this exam promise much. They do not deliver.

There is one more dimension that is worth note under the general criteria of higher order thinking. The NYS exam presumably scores high on the Education Week criteria in part because of the "extended response" items or essays. Moreover, the DBQ seems designed to signal a change in the structure of the social studies exams: One might argue that such a question represents a major shift away from traditional testing and toward more authentic assessment of students' historical understanding and reasoning. The scoring guide for the test, however, mitigates that claim: In short, students can easily pass the test without a single DBQ point. In fact, students can pass the exam without any essay points at all. A conversion chart on the last page of the teacher guidelines indicates that if students total a minimum of 54 points from the total of 61 possible multiple choice and short answer questions, they pass with a converted score of 65 regardless of whether or not they even attempt the essays. (Note 10) In this light, one can argue that the written portion of the new test has been substantially discounted compared to the previous exams. Where the essays once counted for 45% of a student's score, they now account for only 29%. Thus students can leave the essays blank, answer correctly approximately 72% of the multiple choice and short answer questions, and still pass the exam. Adding the DBQ, then, can be read as a minor revision at best.

Implications

Since the mid-1990s, state policymakers have introduced a number of curriculum reforms such as new state standards for social studies. Preliminary indications (Grant, Derme, Gradwell, Lauricella, Pullano, & Tzetzo, 2000) suggest, however, that NYS global teachers view the curriculum and assessment changes as a mixed bag. Some applaud the state's move to a chronological approach as a more coherently historical mode. Others condemn this move (and some individual teachers and whole departments have rejected it) arguing that it undercuts the power of a cultural studies approach.

More important than the curricular changes, however, are teachers' concern about the new state tests (Grant, 1997a, 2000). This makes sense for two reasons. First, the curriculum documents produced thus far offer teachers little assistance in making concrete instructional decisions (Grant, 1997b). Second, the messages teachers receive often promote the view that tests are intended to drive change (Grant, 1996). For example, during sessions introducing the new state social studies standards, one representative from the New York State Education Department said that new tests will "help grow change in the system." During another session, a different SED representative said, "New assessments will represent a change in instruction....Kids won't perform well until (teachers') instruction reflects this." And at yet a third meeting, NYS Commissioner Richard Mills added, "Instruction won't change until the tests change." The message that tests matter also surfaced during local school and district meetings. A suburban district social studies supervisor, for example, told teachers that "change in content will come if we change the tests." An urban district supervisor observed, "If we change the assessments, we'll change instruction" (Grant, 1996, p. 271). One might question the focus of test influence--instruction, curriculum, or the "system" in general--but it is hard to miss the larger point: tests matter.

But how the new tests will matter deserves continued investigation. Our initial work in this area (Grant, Derme, Gradwell, Lauricella, Pullano, & Tzetzo, 2000) suggests that teachers' views of the new tests reflect some ambiance. Most teachers support the use of documents and the DBQ. Yet from what teachers have seen in the test sampler disseminated by the state education department, few see this move as necessitating a fundamental shift either in their own pedagogies or as indicating a fundamental shift in the state's emphasis on social studies knowledge as represented in multiple-choice questions.

The analysis above, which focuses on the first test administered to NYS tenth graders last spring, suggests that teachers have it about right: The new test represents little in the way of fundamental change, and so can be read as demanding little change in classroom practices. True, some teachers report a ratcheting up of anxieties by students, parents, and administrators as test scores become media fodder. But responding to test score concerns and responding to the tests at hand may be two very different things.

Notes

1. The impetus for this action was a symposium entitled, "State Standards-Based Assessments and the Social Studies" held

during the annual conference of the National Council for the Social Studies, San Antonio, Texas in November, 2000. Pat Avery and I were joined by Robin Chandler (Kentucky), Jean Craven (New Mexico), and Ceola Ross Baber (North Carolina).

2. Thanks to Sandra Cimbricz for bringing this quote to my attention.
3. Mock test items, called test samplers, are available for the grades 5, 8, 10, and 11 tests (see http://www.emsc.nysed.gov/ciai/assess.html). The first administration of the grade 5 test is scheduled for November 2001; the new grade 8 and 11 tests are scheduled for June 2001.
4. Seven additional questions lump together people, places, and events such that it is difficult to ascribe them to a category.
5. Three additional questions span these time ranges and thus are difficult to categorize.
6. The other two segments are: The Resurgence of Renaissance Europe and Global Trade and Interactions.
7. Alert readers will note that Statement C is the key to the correct answer. Students might consider Statements A and B, but these are general features of most economic systems.
8. The quote from "Katia" might be double-counted as both in support of communism and in opposition to capitalism in that, before the bulk of the quote which does the former, she offers this presumed critique of capitalism: "Capitalists are rich people who own factories and have lots of money and workers."
9. I recognize that the adverb "increasingly" is problematic since no comparative data is presented. Nevertheless, in testmakers' parlance, it is clearly the "best answer."
10. Even more startling is the fact that in those many districts that opted to lower the passing score to 55, students need only get 44 of the possible 61 points to pass.

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High School Size, Achievement Equity, and Cost: Robust Interaction Effects and Tentative Results

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Abstract

The past decade has occasioned a dramatic increase in research on relationships between school size and a variety of outcomes, including measured achievement, high school completion rates, and postsecondary enrollment rates. An interesting interaction effect which has been found in replications across seven very different states is that as school size increases, the "achievement test score costs" associated with the proportion of economically disadvantaged students enrolled in a school also increase. In short, as schools get larger, average achievement among schools enrolling larger proportions of low socioeconomic-status students suffers. A traditional argument against smaller schools, however, is that they are simply *too expensive to operate* (regardless of proven benefits). Large consolidated schools--often with narrowly specialized grade spans--are typically proposed and constructed as necessary to "save money" and to meet the "developmental needs" of certain age groupings. This article has two objectives. First, to determine if the size-by-socioeconomic status interaction effect proves robust across alternative regression model specifications, as it did across differing states. Second, to make a tentative judgment as to whether the equity gains associated with smaller schools are incompatible with the need for fiscal efficiency. The analyses (based on our Texas data set) suggest that the answer to the first question is "yes" and the answer to the second question is "no." In particular, the K-12 "unit school" configuration in Texas is shown to be both educationally effective and cost effective.

Educational researchers and policy makers rarely meet an issue they are willing to resolve once and for all. School size is a case in point. Interest in school size as an explanatory factor waxes and wanes, but never dies. The effect of variability in school size on educational achievement and a variety of related outcomes remains a subject of sometimes intense, sometimes dilatory, inquiry and debate.

In the study reported here, we use a Texas data set representing 1,001 high schools to build on previous research, completed first in California and then replicated in six very different states. (The data set is available here for researchers who wish to replicate or extend our analyses.) This line of research has, with unusual consistency, found an interesting interaction effect between socioeconomic status (SES) and school size in the production of achievement: as school size increases, school performance (aggregate achievement at the school level) *decreases for economically disadvantaged students*. In short, as schools get larger, those with poor children as students perform increasingly less well when achievement is the outcome measure. School size imposes increasing "achievement costs" in schools serving impoverished communities.

Research Questions

Continuing this line of research, we address two specific questions. First, will a replication that deploys a more fully specified regression model find the same size-by-SES interaction effect among the high schools in our Texas data set as was previously found (Bickel, 1999b)? Second, whatever the merits of small schools, are large high schools with conventionally narrow grade ranges necessary to minimize expenditures per pupil ("save money"), or can "savings" occur *without* increased size?

Replication Through Re-Specification

In previous analyses, the independent variables included in regression equations were limited to a measure of school size, either total number of students or number of students per grade level; a measure of SES, most often percent of students eligible for free or reduced cost lunch; and the multiplicative interaction term. Some analyses included student-teacher ratio (Howley, 1999a, 1999b) or ethnicity variables (Bickel, 1999b). The most notable exception, however, is a multi-level analysis of Georgia data, which incorporated both ethnic composition and student/teacher ratio (Bickel & Howley, 2000). To improve on past research, the primary difference between the work reported in the present study and the previous replications is a more fully specified regression model.

Therefore, we are now asking if the size-by-SES interaction effect will prove unduly sensitive to better-informed regression model specification, diminishing the credibility of the consistent results reported from previous research. In other words, does the interaction effect merely mask the influence of "the usual suspects" through inadequate model specification? (Note 1)

Fiscal Practicality

In addition, we examine the claim that large schools with a narrow range of grades are a necessary organizational consequence of the modern need to minimize expenditures (fiscal efficiency). Many policy makers and administrators who have persisted in off-handedly dismissing the small-is-better research have done so in the name of fiscal practicality. Large consolidated schools, specializing in just a few grade levels, are viewed as essential to achieve "economies of scale" and to meet the supposedly critical developmental needs of students of differing ages. Those who hold contrary views are dismissed as romantics. (For a more balanced view, however, see Boex & Martinez-Vasquez, 1998).

School size *is* negatively related to expenditure per pupil in zero-order correlational analysis. However, our analyses of the link between school size and expenditure per pupil go beyond the usual simplicities to include the under-researched concept of *grade span configuration*. (Note 2)

Specifically, 116 of the high schools in our Texas data set are single-unit schools: the only school in a typically small, typically rural district, containing all elementary and secondary grades under a single roof. (Note 3) With expenditure per pupil as the outcome measure, multiple regression analysis shows that single-unit schools, on average, correspond to a *reduction* in expenditure of $1,017 *per pupil*, a substantial efficiency, when compared with conventionally grade-specialized high schools. (See Table 6.)

The "savings" can be statistically attributed to two distinctive characteristics of single-unit schools in Texas: each is the only school in its district, and each has an unusually broad grade configuration, K-12, PreK-12, or early childhood-12 (see Table 7). *We find, however, that the savings decline as such schools become larger*. In other words, in Texas, *small* K-12 unit schools are cost effective, all else equal. They are also, as we shall see, educationally effective because, overall, such schools *do* tend to be small.

School Size: A Timely Issue

Writing on the role of school size as a determinant of school performance has a long history and is embedded in a voluminous literature (see, for example, Barker & Gump, 1964; Fowler, 1991; Guthrie, 1979; Khattari, Riley, & Kane, 1997; McDill, Natriello, & Pallas, 1986; Smith & DeYoung, 1988; Walberg & Walberg, 1994). As with so many commonly invoked explanatory factors in the social and behavioral sciences, reports about the effects of school size have been contradictory (Caldas, 1993; Lamdin, 1995; Rivkin, Hanushek, & Kain, 1998; Rossmiller, 1987). Part of the problem is that findings about size have often been a footnote in research focused on "effective schools," "school restructuring," or other species of broad-based reform efforts. As a consequence, school size sometimes has been relegated to the status of an obligatory but uninteresting control variable. Not infrequently, it simply has been ignored (Barr & Dreeben, 1983; Gamoran & Dreeben, 1986; Farkas, 1996; Hanushek, 1997, 1998; Wyatt, 1996).

Uncertainty as to the import of school size has yielded state-of-the-art school effectiveness research that fails to designate size a "resource," much less a resource worthy of investigation. A recent school effectiveness review by eleven production function virtuosos, for example, devoted four of its three hundred ninety-six pages to school size (Hodges & Greenwald, 1996, p. 81; Betts, 1996, pp. 166-168). Consequences of variability in school size were, in sum, judged to be uncertain.

This assessment is simplistic and wrong according to recent studies. In fact, the Education Commission of the State (ECS) has for some time recommend smaller school size as one of the "best investments" policy makers could sponsor (Fulton, 1996). The research base on the influence of size per se (rather than as a feature of reformed or restructured schools) is developing quite rapidly, and may be said to have spawned a "movement" (Fine & Somerville, 2000).

One Size Fits All

One important limitation of most literature covering school size has been failure to examine the interaction of school size with other variables (Howley, 1989; Lee & Smith, 1995; Mik & Flynn, 1996; Riordan, 1997). This deficiency tends to give rise to a one-size-fits-all point of view. Within any school, it may seem, size-related benefits accrue and size-related costs are borne equally by all students (Conant, 1959; Haller, 1992; Haller, Monk, & Tien, 1993; Hemmings, 1996). This turns out to be a dubious assumption (Bickel & Howley, 2000).

Discounting Equity

In an era of cult-of-efficiency institutional restructuring, moreover, questions as to the "best" size for any school are often expressed in the scientific management terms of organizational efficiency. In economists' terminology, presumed economies of scale frequently have been given pride of place (Haller, Monk, Bear, Griffith, & Moss, 1990; Purdy, 1997; Tholkes & Sederberg, 1990). As with much contemporary educational research, equity questions are usually dismissed as irrelevant to the school size discussion, at least when fiscal efficiency is at stake. For many, this has simply come to mean that bigger is better, inevitably and always (Stevenson, 1996), when choices about school construction are made.

Small is Better?

Recently, nevertheless, attention has been drawn to a growing body of empirical research that holds that school size is negatively associated with conventional measures of educational productivity. This includes measured achievement levels, dropout rates, grade retention rates, and college enrollment rates (see, for example, Bickel & McDonough, 1997; Fowler, 1995; Fulton, 1996; Mik & Flynn, 1996; Stevens & Peltier, 1995; Walberg & Walberg, 1994).

Size-by-SES Interaction Effects

In part, renewed interest in smaller schools is due to research concerning the joint or interactive, rather than independent or main, effects of school size and SES. Specifically, interaction effects have been identified which suggest that the well known adverse consequences of socioeconomic disadvantage are tied to school size in substantively important ways.

In brief, as school size increases, the mean measured achievement of schools with less-advantaged students declines. The larger the number of less-advantaged students attending a school, the greater the decline (Bickel & Howley, 2000; Friedkin & Necochea, 1988; Howley, 1995, 1996; Howley & Bickel, 1999; Huang & Howley, 1993).

In addition to helping revive interest in school size as a variable of importance in educational research, this work has begun to sensitize researchers and policy makers to equity concerns associated with school size. One-size-fits-all is no longer a unanimous judgment. Some researchers and policy makers are now asking, "Best-size-for-whom?" (Devine, 1996; Henderson & Raywid, 1994).

Reproducible Findings: A Research Agenda

Research on size-by-SES interactions, moreover, has substantial geographic scope. The same school-level interactions have been found in California (Friedkin & Necochea, 1988), West Virginia (Howley, 1995, 1996), Alaska (Huang & Howley, 1993); Montana (Howley, 1999a), Ohio (Howley, 1999b); Georgia (Bickel, 1999a; Bickel & Howley, 2000), and Texas (Bickel, 1999b). In contrast to so much research which has yielded initially interesting findings, the likelihood that additional replications will yield sharply conflicting results has been substantially reduced by the findings from these studies.

Texas High School Data for 1996-97

By way of continuing this line of investigation, we use a data set consisting of 1,001 Texas high schools. This represents 83.6 percent of all high schools in the state for academic year 1996-97. The 196 excluded schools are those for which values were not available for one or more of the variables used in our analyses (Bickel, 1999b).

Independent Variables

As already explained, previous research on this issue has been marked by simplified regression model specification. In large part, this parsimonious approach derives from the fact that proper specification for research on school size or any other correlate of achievement is substantively uncertain and theoretically thin. The usual suspects are SES and ethnicity variables, but a host of other variables has often been included in production function models. The debate continues (cf. Greenwald, Hedges, & Laine, 1996; Hanushek, 1996; Hedges, 1996).

Pending a resolution to this debate, the independent variables included in Table 1 seem appropriate. (Note 4) They reflect the ethnic, linguistic, and socioeconomic diversity of the state's high school students (PCTBLACK, PCTHISP, PCTLEP, PCTPOOR); they show substantial variability in Texas high schools' organizational characteristics and resources, including size (SIZE, S/TRATIO, EPP, PCTINST, UNIT, LEVELS, HIGHSKLS); and they manifest pertinent variability in curricular composition (PCTTECH, PCTSPECL, PCTGIFT). (Note 5)

Inclusion of student/teacher ratio (S/TRATIO), a useful proxy for class size among the additional independent variables, enables us to address questions as to whether small classes in large schools diminish the adverse consequences of increased size. As it turns out, they do not. This result is consistent with tests of the hypothesis in ancillary analyses provided in two of the previous studies (Howley, 1999a, 1999b).

Table 1
Definitions of Variables

SIZE	Number of students. (Expressed in thousand- student units in Tables 3 through 5; expressed in natural logarithms of single-student units in Tables 6 and 7.)
PCTPOOR	Percentage of students eligible for free or reduced-cost lunch.
PCTBLACK	Percentage of students who are Black. (Expressed in natural logarithms.)
PCTHISP	Percentage of students who are Hispanic.
PCTLEP	Percentage of students classified as limited English proficient. (Expressed in natural logarithms.)
S/TRATIO	Student/teacher ratio.
EPP	Expenditure per pupil. (Expressed in thousand- dollar units in Tables 3 through 5.)

PCTINST	Percentage of total budget allotted for instruction.
PCTTECH	Percentage of students enrolled in a full-time career and technical education curriculum.
PCTSPECL	Percentage of students enrolled in a full-time special education program.
PCTGIFT	Percentage of students classified as gifted.
UNIT	Coded 1 for single-unit schools, and 0 otherwise.
HIGHSKLS	Number of high schools in a district. A high school is any school which includes grade 12. (Expressed in natural logarithms.)
LEVELS	Number of grade levels.
R10	Texas Assessment of Academic Skills tenth grade reading test.
M10	Texas Assessment of Academic Skills tenth grade math test.
W10	Texas Assessment of Academic Skills tenth grade writing rest.

Dependent Variables: Measures of Achievement

In Tables 3, 4, and 5, the dependent variables are taken from the mandatory Texas Assessment of Academic Skills (TAAS) end-of-grade battery, used on a limited basis since the Fall of 1990, and fully implemented in 1994. The tests are criterion-referenced measures of attainment in reading, math, and writing, administered to tenth graders throughout the state, and used to evaluate the performance of students and, by implication, the effectiveness of schools and school districts in promoting measured achievement. Measures of internal consistency for the TAAS are reported to range from .80 to .90 (Texas Education Agency, 2000). (For critical discussions of the use and interpretation of TAAS, see Clopton, Bishop, & Klein ,1997; Haney, 2000; and Klein, Hamilton, McMaffery, & Stecher, 2000).

Dependent Variables: Expenditure Per Pupil

In Tables 6 and 7, expenditure per pupil is the dependent variable, and measured achievement is used for purposes of statistical control rather than as an outcome measure. Since scores for R10, M10, and W10 are closely correlated, use of all three in the same equation produces multicollinearity, with Condition Indices well above thirty (Gujurati, 1995, p. 338).

To eliminate this threat, we have created a summary achievement measure, COMPOSITE, which is the sum of the Z scores of R10, M10, and W10. All bivariate correlations between COMPOSITE and its three constituents exceed .935.

We have also found that the relationship between SIZE and EPP is curvilinear, but that the relationship can be linearized using natural logarithms of SIZE. Use of this transformation is discussed further in the next section.

Descriptive Statistics

Table 2 shows that the mean value for SIZE, total number of students enrolled, is 877.19. The size of the standard deviation, 849.88, indicates that SIZE manifests a good deal of variability, with a coefficient of variation of 103.2 percent.

While SIZE has a positive skew, the skew is not so extreme that the variable warrants logarithmic or other transformation (Fox, 1997, pp. 64-68). In fact, using the Studentized range test for normality, SIZE more closely approximates a normal distribution when non-transformed values are used (see Kanji, 1993, p. 65). Therefore, actual SIZE values are used in the analyses with achievement tests as outcome measures, reported in Tables 3, 4, and 5.

The relationship between SIZE and EPP is curvilinear: concave and sloping downward for the smallest values of school size; almost perfectly straight with a modest downward slope for SIZE values between 220 and 550; almost perfectly straight with a diminished downward slope between size values 550 and 1800; then sloping still less, and eventually becoming level for SIZE values of more than 3200 students. This is similar to the curvilinear relationship between high school size and cost discovered by Stiefel, Berne, Iatarola, & Fruchter (2000) in their New York City data.

We have linearized the relationship between SIZE and EPP in our Texas data by taking natural logarithms of SIZE for the analyses reported in Tables 6 and 7 (where EPP is the dependent variable)..

Table 2 Descriptive Statistics
Means and
(Standard Deviations)
N=1001

SIZE	877.19 (849.88)
PCTPOOR	36.51 (30.93)
PCTBLACK	11.07 (17.34)
PCTHISP	27.73 (27.78)
PCTLEP	4.95 (8.99)
S/TRATIO	13.24 (3.15)
EPP	4745.67 (1318.94)
PCTINST	69.92 (7.34)
PCTTECH	56.12 (20.59)
PCTSPECL	13.54 (6.08)
PCTGIFT	9.02 (7.07)
	0.12

UNIT	(0.32)
HIGHSKLS	2.96 (5.12)
LEVELS	5.34 (3.11)
R10	39.17 (2.30)
M10	45.51 (4.08)
W10	32.88 (1.80)

Means and standard deviations for PCTBLACK, PCTLEP and HIGHSKLS are reported in Table 2 before the variables were logged. Since, however, each has a sharp positive skew, with most of the observations confined to a very narrow range of data on the left side of the distribution, the variability of each is tightly constrained. Taking natural logarithms spreads each distribution, making it more informative (Fox, 1997, pp. 64-68).

It is also worth noting that the standard deviations for the R10, M10, and W10 achievement tests are small: 2.30, 4.08, 1.80. Coefficients of variation are similarly small, 5.9 percent, 9.0 percent, and 5.5 percent.

Routine tests for violations of assumptions of the classical normal linear regression model, and for the presence of influential observations ("outliers"), were conducted. No assumptions were violated, and there were no speciously influential observations.

Regression Results: A Robust Interaction Effect

Tables 3, 4, and 5 provide results of regression analyses using TAAS reading, math, and writing scores as dependent variables. The most interesting finding for present purposes is that the size-by-SES interaction effect is statistically significant and negative in each instance. This interaction, in each case, is, in fact, the most influential variable after SES and the ethnicity variables (the influence of which varies across subject areas). As school size increases, the cost to school performance of schools serving economically less-advantaged students increases, as well. This, of course, was the finding in all previous replications.

Table 3
TAAS Reading Achievement
Unstandardized and (Standardized) Coefficients
N=1001

SIZE	0.177 (.065)
PCTPOOR	-0.040*** (-.367)
PCTBLACK!	-0.253*** (-.142)
PCTHISP	-0.010** (-.123)
PCTLEP!	-0.268** (-.117)
S/TRATIO	- 0.008 (-.011)
EPP	0.027 (.015)

PCTINST	0.007 (.022)
UNIT	0.733** (.102)
PCTTECH	0.004 (.040)
PCTSPECL	0.047** (-.123)
PCTGIFT	0.038** (.118)
SIZE-by-SES	-0.035** (-.143)

Adjusted R-Squared = 40.3%

*** <.001

** <.01

* <.05

! Expressed as Natural Logarithms

Partial Derivative = -0.035(PCTPOOR)

Effect Size Points (S.D. Units)	PCTPOOR (Quartiles)
-0.76 (-0.33)	21.6%
-1.14(-0.50)	32.5%
-1.73 (-0.75)	49.5%
-3.50 (-1.52)	100.0%

Table 4
TAAS Math Achievement
Unstandardized and (Standardized) Coefficients
N=1001

SIZE	0.019 (.040)
PCTPOOR	-0.062*** (-.318)
PCTBLACK!	-0.631*** (-.200)
PCTHISP	-0.022** (-.152)
PCTLEP!	0.010 (.002)
S/TRATIO	-0.146** (-.113)
EPP	-0.149 (-.048)
PCTINST	0.007 (.013)
UNIT	0.611 (.048)
PCTTECH	0.005 (.024)
PCTSPECL	-0.064** (-.095)
PCTGIFT	0.052** (.090)
SIZE-by-SES	-0.060** (-.144)

Adjusted R-Squared = 30.5%

*** <.001

** <.01

* <.05

! Expressed as Natural Logarithms.

Partial Derivative = -0.060(PCTPOOR)	
Effect Size Points (S.D. Units)	PCTPOOR (Quartiles)
-1.30 (-0.32)	21.6%
-1.95 (-0.48)	32.5%
-2.97 (-0.73)	49.5%
-6.00 (-1.47)	100.0%

Table 5
TAAS Writing Achievement
Unstandardized and (Standardized) Coefficients
N=1001

SIZE	0.052 (.025)
PCTPOOR	-0.031*** (-.366)
PCTBLACK!	-0.183*** (-.132)
PCTHISP	-0.002 (-.037)
PCTLEP!	-0.310*** (-.173)
S/TRATIO	-0.041 (-.072)
EPP	-0.007 (-.006)
PCTINST	0.007 (.027)
UNIT	0.505** (.090)
PCTTECH	-0.001 (-.010)
PCTSPECL	-0.036*** (-.123)
PCTGIFT	0.027** (.105)
SIZE-by-SES	-0.033*** (-.171)

Adjusted R-Squared = 40.3%

*** <.001
** <.01
* <.05
! Expressed as Natural Logarithms.

Partial Derivative = -0.033(PCTPOOR)	
Effect Size Points (S.D. Units)	PCTPOOR (Quartiles)
-0.71(-0.40)	21.6%
-1.07 (-0.60)	32.5%
-1.63 (-0.91)	49.5%
-3.30 (-1.84)	100.0%

Clearly, the interaction effect involving school size and the percentage of students who are poor is robust and strong in the presence of regression model re-specification. This result adds credibility to the repeatedly replicated finding that smaller schools diminish the achievement disadvantages associated with being poor. Larger schools, by contrast, exaggerate these disadvantages.

Effect Size

As with previous research on size-by-SES interactions, we have computed illustrative effect sizes by using partial derivatives. This is done by differentiating the regression equations in Tables 3 through 5 with respect to SIZE (expressed in thousand-student units), while treating the other independent variables as constants (Purcell and Varberg, 1984, pp. 308-309, 636-639). Statistically nonsignificant coefficients are set equal to zero. (Note 6)

The results, reported at the bottom of each table, are the average achievement decrements, in test score points and standard deviation (S.D.) units, which come with each quartile increment in PCTPOOR. In each instance, we see that there are mean achievement test score costs associated with economically disadvantaged students, and these costs increase as the percentage of less-advantaged students increases.

The substantial nature of the achievement costs becomes clearer when we recall that the standard deviations and coefficients of variation for R10, M10, and W10 are small. *This replication, based on informed regression model re-specification, makes clear that the size-by-SES interactions are robust and strong.*

Can Costs Decline Without Increasing Size?

In spite of the consistently strong findings about school performance, small schools with a broad range of grade levels seem to many--if not most--observers singularly anachronistic. The move toward ever-larger, ever-more grade-specialized schools, is proceeding apace (Lyons, 1999; Funk & Bailey, 1999; Boex & Martinez-Vasquez, 1998). One of the coauthors recently received a query from a former student about whether any research addressed the greater effectiveness of a K-3 versus a K-5 school. The answer, not surprisingly, is "no."

This study, however, together with several other studies (e.g., Franklin & Glascock, 1998; Howley & Harmon, 2000a; Wihry, Coladarci, & Meadow, 1992; DeYoung, Howley, & Theobald, 1995), attempts to raise the issue of grade span configuration more systematically . In general, the present analysis finds that restricting the grade span of a school *increases* costs. That is, given a level of school performance, the school with a broader grade span will provide that level of performance at lower cost (all else equal).

A critical problem for such an analysis is differences in grade level expenditures per pupil, which are higher for secondary than for elementary grades. Without controlling for this difference, we bias the analysis to favor cost reductions for schools with the broadest range of grades. Therefore, we created a weighting variable for the EPP at each grade level to control for such grade level differences in expenditure per pupil. This additional variable (which does not appear in the tables) was created by multiplying the number of students at each grade level by the mean EPP at each grade level, summing across the grades included in a school, then dividing by school size. (Note 7)

We make these analyses because, administrators and policy makers deal with fiscal constraints that render findings about the educational benefits of small size seem impractical to them. For them, cost remains a primary consideration. For instance, rural superintendents who operated small rural high schools (enrolling fewer than 400 students) recently cited fiscal constraints as the *primary* threat to the continued existence of such schools (Howley & Harmon, 2000b). Departure from the large, grade-specialized mode in pursuit of equity appears to many administrators to be a luxury they cannot afford (Keller, 2000). Findings reported here should help administrators and policy makers revise commonly held views about the fiscal practicality of operating small high schools in the 7-12 and K-12 configurations. (Note 8)

Multiple Regression Analysis: Expenditure Per Pupil

In the regression analysis reported in Table 6, the dependent variable is expenditure per pupil. The independent variables are otherwise the same as with Tables 3, 4, and 5, except that the size-by-SES interaction term has been deleted as irrelevant to this analysis (since the theory links the interaction to school performance, which is not the dependent variable in these analyses), and the three achievement test scores are now used as independent variables for purposes of statistical control, appearing jointly in the COMPOSITE variable.

Finally, a multiplicative interaction term created using UNIT and SIZE (with SIZE logged and centered, see Cronbach, 1987) has been added. Given statistically significant coefficients for these two variables, a UNIT-by-SIZE interaction term will enable us to determine if the relationship between SIZE and EPP varies between single-unit schools and conventional high schools.

Table 6
Unit Schools and Expenditure Per Pupil
Unstandardized and (Standardized) Coefficients
N=1001

SIZE!	-254.415*** (-.199)
PCTPOOR	-4.158 (-.066)
PCTBLACK!	81.239** (.080)
PCTHISP	5.668** (.119)
PCTLEP!	37.920 (.029)
S/TRATIO	-284.614*** (-.680)
PCTINST	-35.422*** (-.199)
PCTTECH	-2.923 (-.046)
PCTSPECL	1.291 (.006)
PCTGIFT	4.823 (.026)
COMPOSITE	-3.551 (-.008)
UNIT	-1017.607*** (-.247)
UNIT-by-SIZE	-730.195*** (-.172)
Adjusted R-Squared = 51.4% *** <.001 ** <.01 * <.05 ! Expressed as Natural Logarithms. !! Weighted for differences in mean EPP by grade level.	
Partial Derivative = -254.415(1/SIZE) - 730.195 (UNIT)(1/SIZE)	
Effect Size	SIZE

(Dollars)	(Quartiles)
UNIT=1 UNIT=0	
-4.48 -1.16	220
-2.20 -0.57	447
-0.67 -0.17	1459
-0.22 -0.06	4434

Regression Results: Anticipated and Unanticipated Findings

Not surprisingly, school size (SIZE) has a statistically significant and negative relationship to expenditure per pupil. The same is true of student-teacher ratio (S/TRATIO), the variable exercising the greatest influence on expenditure per pupil. Smaller schools and smaller classes are associated with higher expenditures overall (but *not* with all else equal).

Less predictably, the statistically significant regression coefficient corresponding to UNIT is notable: Being a single-unit school is associated with an average reduction in expenditure-per-pupil of just over $1,017. Other things being equal (that is, with the full complement of controls in place, including achievement level, class size, and grade-level differences in EPP), having only one school, covering all grades in a district, represents *substantial* dollar savings.

The multiplicative interaction term, UNIT-by-SIZE, however, also has a negative and statistically significant coefficient. This interaction indicates that the net influence of *increases* in school size provides *more substantial cost reductions* for single-unit schools than for conventional schools.

Reduced Costs Without Increased Size?

The results reported in Table 6 affirm the conventional wisdom that size is negatively related to expenditure per pupil, for both single-unit schools and conventional high schools. Table 6 also shows, however, that the relationship is more complex than commonly acknowledged. After controlling for size and a reasonable complement of other factors, single-unit schools are associated with substantial savings in expenditure per pupil, and increases in size yield greater cost reductions for single-unit schools than for conventional grade-specialized schools. What can explain such unexpected findings? We seek possible answers to such questions in the organizational distinctiveness of single-unit schools as defined in this study.

Single-Unit Schools: Organizational Distinctiveness

Organizationally, the characteristics that conspicuously set these single-unit schools apart are number of grade levels, and the fact that, in this data set, each is the only school in its district. (Note 9) Seventy-five percent of the high schools in our data set have four or fewer grades (LEVELS). Single-unit schools, however, with K-12, PreK-12, or early childhood-12 configurations, have thirteen, fourteen, or fifteen grade levels. Similarly, the mean of the variable HIGHSKLS (before logging) tells us that the average number of high schools per district is nearly three, while a single-unit school is the only school of *any* kind in its district.

Single-Unit Distinctiveness and Expenditure Per Pupil

In an effort to explain cost savings associated with single-unit schools, therefore, in Table 7 we have added two additional independent variables, representing the distinctive characteristics of single-unit schools. Since LEVELS is very closely correlated with UNIT (r=.965), the UNIT variable has been deleted, replaced by the organizational components of the Texas single-unit school phenomenon (i.e., LEVELS and HIGHSKLS). We construe the new independent variables as essential components of the global, complex variable UNIT (Rosenberg, 1968, pp. 40-52). In effect, we are trying to identify the specific characteristics of UNIT that may account for its unexpected relationship with expenditure-per-pupil (EPP). These characteristics, of course, may also be associated with reduced costs in conventional high schools.

We have also created a multiplicative interaction term with SIZE and each of the components of UNIT. Thus, we are also adding to the regression equation LEVELS-by-SIZE and HIGHSKLS-by-SIZE, with all variables used in creating the interaction terms centered (Cronbach, 1987).

Table 7
One High School, Grade Levels, and Expenditure Per Pupil
Unstandardized and (Standardized) Coefficients
N=1001

SIZE!	-290.519*** (-.227)
PCTPOOR	-2.927 (-.046)
PCTBLACK	35.476 (.035)
PCTHISP	4.160* (.088)
PCTLEP!	23.216 (.018)
S/TRATIO	-314.462*** (-.751)
PCTINST	-34.101*** (-.191)
PCTTECH	-3.365 (-.053)
PCTSPECL	1.318 (.006)
PCTGIFT	0.646 (.003)
COMPOSITE	8.725 (.019)
HIGHSKLS	332.023*** (.223)
LEVELS	-98.358** (-.232)
HIGHSKLS-by-SIZE	-114.038* (-.076)
LEVELS-by-SIZE	-48.445** (-.108)

Adjusted R-Squared = 52.8%

*** <.001
** <.01
* <.05
! Expressed as Natural Logarithms.
!! Weighted for differences in mean EPP by grade level.

Partial Derivative = - 290.519(1/SIZE) - 114.038 (HIGHSKLS)(1/SIZE) - 48.445(LEVELS)(1/SIZE)

Effect Size (Dollars)	SIZE (Quartiles)	HIGHSKLS (Quartiles)	LEVELS (Quartiles)
-2.20	220	0	4
-1.08	447	0	4
-0.41	1459	0.69	6
-0.31	4434	3.26	15

LEVELS, HIGHSKLS, and Expenditure Per Pupil

The results are instructive. Predictably, as with Table 6, the coefficients corresponding to SIZE and S/TRATIO are negative and statistically significant. This holds in spite of the fact that SIZE and S/TRATIO are substantially correlated (r=.736), thereby reducing statistical power. However, the variance inflation factors for each, though the largest for the equation, are well within acceptable limits, 4.870 and 4.131 (Chatterjee, Hadi, & Price, 2000, pp. 240-241). (Note 10)

Furthermore, given that LEVELS and HIGHSKLS are construed as effective components of UNIT, the following results are not surprising: as the number of high schools in a district increases, expenditure per pupil also *increases*, averaging just over 332 dollars per school. In addition, each grade level added to a high school is associated with an average expenditure per pupil *decrease* of just over 98 dollars. (The distribution of high schools per district and by grade levels is reported in Table 8 and Table 9.)

Table 8
High Schools Per District

1	2	3	4	5	6	8	10	12	21	26
92.49% (727)	3.69% (29)	1.14% (9)	1.27% (10)	0.76% (6)	0.51% (4)	0.25% (2)	0.25% (2)	0.13% (1)	0.13% (1)	0.13% (1)

Table 9
Grade Levels Per High School

2	3	4	5	6	7	9	12	13	14	15
0.50% (5)	1.80% (18)	72.43% (725)	0.80% (8)	11.09% (111)	1.70% (17)	0.09% (1)	0.09% (1)	5.79% (58)	3.70% (37)	2.00% (20)

Finally, the statistically significant interaction terms make clear that as SIZE increases, the increased costs associated with having more than one high school in a district are diminished; while the reduced costs associated with having more grade levels are reduced still more.

What Is To Be Made of All This?

School Size and Expenditure Per Pupil: Diminishing Returns

One way to summarize these complex results is to refer to the *illustrative* effect sizes reported (by quartiles of significant variables) on Tables 6 and 7. For each analysis, as school size increases, the partial derivatives show savings, but progressively diminished savings. (Note 11) School size is negatively related to expenditure per pupil, but savings diminish with each increment in size (see the following discussion of diseconomies of scale for our interpretation of this finding.)

School Size and Expenditure Per Pupil: Single-Unit Schools

Furthermore, with a judiciously selected complement of controls in place, single-unit schools and their defining characteristics--number of grade levels and uniqueness in their district--are associated with substantial savings in expenditure per pupil. For these organizationally distinctive schools, moreover, size contributes more to reducing costs than in conventional high schools.

One related observation needs still to be underscored. Despite the *comparative* cost-advantages of increased size for single-unit schools, change in the rate of reduction in EPP as size increases slows for *both* K-12 schools *and* other schools--the slowing is simply *less dramatic* for other schools. See the effect sizes given in Tables 6 and 7 to gauge this difference. (Note 12)

School Size and Expenditure Per Pupil: HIGHSKLS and LEVELS

Not surprisingly, given the savings associated with single-unit schools, as the number of schools in a district increases, so does expenditure per pupil, though this additional cost is less for larger schools than for smaller schools. While this finding might suggest that building additional large, as compared to small, schools is cost-effective, readers need to recall two other facts. First, the law of diminishing returns to investment is definitely applicable: Ever-larger size assures ever-diminishing returns with regard to expenditure per pupil. Second, larger consolidated schools typically do have conventionally *narrow* grade spans, and, as the number of grade levels in a school decreases, expenditure per pupil is again *increased*. So far as expenditure-per-pupil goes, size (total enrollment), grade span configuration, and district organization structure a quite complex playing field for the game of minimizing costs. "Larger schools cost less to operate" is not even a close approximation of such complexity.

Most succinctly: Bigger is not always or even usually cheaper. The questions to be answered locally are: (1) how big (when do the returns to increased size yield negligible savings)? (2) bigger for whom (poverty, ethnicity--poorer communities require smaller schools to maximize achievement)? and (3) bigger under what circumstances (district organization and grade span configuration)? The analyses presented so far show that answers to questions 2 and 3 constrain the answer to question 1. Those who govern school funding and school construction have not, to our knowledge, even begun to recognize the real constraints to large size.

Diseconomies of Scale

Typically, economists attribute diseconomies of scale to problems posed by the need for coordination and control (Bidwell & Kasarda, 1975; Boex & Martinez-Vasquez, 1998; Friedman, 1990). This observation follows from different interests among organizational participants, including lack of consensus with regard to organizational objectives. The usual response is a system of personnel and procedures for supervision and monitoring: bureaucratic organization. Supervision and monitoring are costly additions to an organization, but in increasingly large organizations these additional costs are (ironically) increased by the need to coordinate and control those who supervise and monitor. Bureaucratic organization, a feature of increased organizational scale, inevitably has the effect of *complicating* organization itself. This is a concern faced by any large organization, not just schools.

As organizations become larger and more complicated, with ever-greater specialization among employees, departments, and levels, threats of organizational anomie and anarchy not only come into play, but are often *realized* and disorganization begins to prevail (Shedd & Bachrach, 1991). In dynamic fashion, additional "negative feedback loops" necessary to maintain stability increase supervision and monitoring costs to unacceptably high--and ultimately counterproductive-- levels. Change and adaptation become so costly that they are sacrificed to the imperative of sheer survival. A school enrolling 750 students can easily offer *all* the curricular and co-curricular "iconography" that characterizes the American comprehensive high school (Haller et al., 1990), and increases in size beyond some hypothetical level of what might be called "programatic surfeit" come at a cost to efficiency, recognizable as diminishing returns to size if not as absolute diseconomies of scale. For instance, high schools enrolling 3,500 as compared to 750 students would (hypothetically) realize little or no economic advantage to their increased size, they might encounter *diseconomies* of scale that counterbalance and, beyond some hypothetical threshhold, overwhelm the accumulated advantages of economies of scale (see, e.g., Bidwell & Kasarda, 1975; Friedkin & Necochea, 1988).

This description will sound familiar to many readers in big-city mega-districts as well as to readers of very large districts in rural and suburban locales. The so-called "small schools movement" is a reform strategy to address this dilemma in metropolitan districts. Elsewhere, in rural areas and small towns, extant small high schools are often regarded as too expensive to exist, in part because analyses with adequate controls (such as appear in the present study) are so seldom undertaken or even understood as necessary. According to some observers, both policy analysts and policy makers have tended to ignore the issue of organizational scale as an influence on school performance (Guthrie, 1979; Howley, 2000; Wasley, Fine, Gladden, Holland, King, Mosak, & Powell, 2000)

The results of this study may indicate that inclusion of all grade levels in the same setting fosters a common, perhaps strongly tacit, understanding of organizational purpose. A K-12 school, for example, includes all personnel who teach and administer in all grades in the same location. This may foil development of the usual articulation problems that characterize relationships among elementary schools, middle schools, and high schools, diminishing the need for costly monitoring and supervision.

Similarly, if a school is the only one in its district, between-school differences in purpose and procedure cannot occur, further reducing the need for coordination and control through monitoring and supervision. When a single school with a broad range of grade levels is also *small*, the seemingly antithetical goals of saving money and promoting equity in achievement may well be attained simultaneously; the odds of doing so are at any rate increased, according to the analyses in this article.

This tentative account, of course, shifts our focus from schools to school districts. This is consistent with earlier Georgia research, in which we found that the achievement of less-advantaged students in larger schools was diminished less if the schools were located in smaller districts. In addition, we found that the expected achievement gains of less-advantaged students in small schools were undercut in large districts (Bickel & Howley, 2000; Howley, 2000).

Size-by-SES and Cost

Table 10 joins the size-by-SES and cost issues still more closely together. We use the same regression model specification employed in Table 7. Our achievement composite is now the outcome measure, and we reintroduce the size-by-SES interaction term.

Table 10
Composite Achievement

**Unstandardized and (Standardized) Coefficients
N=1001**

SIZE!	0.218 (.079)
PCTPOOR	-0.054*** (-.403)
PCTBLACK!	-0.270*** (-.123)
PCTHISP	-0.008 (-.081)
PCTLEP!	-0.255* (-.090)
S/TRATIO	0.017 (.019)
PCTINST	0.004 (.011)
PCTTECH	0.001 (.009)
PCTSPECL	-0.056*** (-.121)
PCTGIFT	0.051*** (.130)
HIGHSKLS!	-0.946*** (-.297)
LEVELS	0.130** (.142)
HIGHSKLS-by-SIZE	0.534*** (.166)
LEVELS-by-SIZE	0.050 (.051)
SIZE-by-SES	-0.034* (-.116)

Adjusted R-Squared = 42.7%

*** <.001
** <.01
* <.05
! Expressed as Natural Logarithms.

Partial Derivative = 0.534(HIGHSKLS)(1/SIZE) - 0.034PCTPOOR)

Effect Size Points (S.D. Units)	SIZE (Quartiles)	HIGHSKLS (Quartiles)	PCTPOOR (Quartiles)
-0.73 (-0.26)	220	0	21.6
-1.10 (-0.39)	447	0	32.5
-1.68 (-0.59)	1459	0.69	49.5
-3.39 (-1.20)	4434	3.26	100.0

Interestingly, LEVELS, the component of UNIT which was associated with reduced expenditures, is now associated with *increased* achievement. HIGHSKLS, the component of UNIT which was associated with increased expenditures, is now associated with *decreased* achievement.

In most other respects the results in Table 10 are like the results reported in Tables 3, 4, and 5. Once again, the size-by-SES interaction term is statistically significant and negative (equal in magnitude to PCTBLACK! and PCTSPECL, i.e., = -.116, p<.05), and the illustrative effect sizes demonstrate that as school size increases, the presence of economically disadvantaged students is associated with diminished average achievement.

Most significantly, perhaps, the influence of size across the SES spectrum, from relatively affluent to impoverished, is negative, though the influence of size is most harmful in larger districts serving many poor students (effect size = -1.20, see Table 10). Even in small unit schools serving a relatively affluent community, however, data in Table 10 show that a one standard-deviation-unit increase in size (850 students, see Table 2), would depress school performance by about one-fourth of a standard deviation.

Cautions

Our data set contains a large number of cases and a broad range of pertinent variables. Nevertheless, it is useful to bear in mind that Texas is a distinctive state. For this reason, our analysis is limited in specific ways (to be considered shortly). We do not claim that these results necessarily apply in other states; indeed, many states retain no single-unit schools, and the present analysis can not be completed in them.

However, the Texas case also shares certain features of policy context with other states. First, most states continue to make changes to their accountability schemes, and these changes notably include changes to assessment instruments. Texas (and many other states) claim, for instance, to be creating "tougher" tests all the time. Such changes are usually more cosmetic than substantive, and there is little reason to suspect that even substantive changes would dramatically alter relationships that prevail among influences in the present study. The fact also remains that the previous studies in this line of research have analyzed data from different states and employed different sorts of achievement measures (both norm- and criterion-referenced standardized tests) with rather consistent results. We would predict that the realtionships apparent here would persist with marginally different sorts of tests--somewhat "tougher," "more authentic," or measuring incrementally different achievement constructs.

Second, in Texas, as in other states, school finance litigation continually produces marginal changes in how schools are funded. Nonetheless, it remains an American principle that schools in wealthy communities sustain their funding advantages through all such changes. Political contest, after all, revolves around the way *money* is deployed by *powerful interests* for public *and private* purposes, and poor people are not well positioned to prevail in such contests. For instance, power equalization school finance schemes may, in Texas and elsewhere, mute the relationships reported here, but they are unlikely to substantially obscure them. Our use of tests of statistical significance serves as a modest hedge against the effect of incremental policy movement, such as changes in assessment and finance systems may entail.

Model Specification

Misleading results due to specification error are a good deal less threatening in our achievement analyses than in our analyses of expenditure per pupil. The size-by-SES interaction effect has proven robust across seven very different states, and for at least four different regression model specifications, two in this paper alone. (Compare Tables 3, 4, and 5 with Table 10. Also see Bickel & Howley, 2000; Friedkin & Necochea, 1988; Howley, 1995; Howley & Bickel, 1999; Huang & Howley, 1993).

Misleading results due to specification error are more likely in our analyses of expenditure per pupil because the variables we have found to be especially interesting, UNIT, LEVELS, and HIGHSKLS, as well as the interaction effects created with SIZE, have not been adequately researched.

The research that has been done on these issues, moreover, does not address relationships between expenditure and variables such as UNIT, LEVELS, and HIGHSKLS (see Wihry, Coladarci, and Meadow, 1992; Alspaugh, 1996; Howley & Harmon, 2000a; Franklin & Glascock, 1998). Therefore, though our choice of independent variables and functional forms seems reasonable, our regression model specification is necessarily tentative, and we readily acknowledge that a better-informed alternative might yield different results.

Concepts: Single-Unit School

We have defined single-unit schools as the only school in a district, including all grade levels. The performance of the component variables LEVELS and HIGHSKLS, along with interaction effects created with these variables and SIZE, suggests that there is merit to this way of construing the single-unit school and its distinctive components.

However, in the only national survey of single-unit schools, Howley & Harmon (2000a) suggest that the single-unit designation be applied to any K-12 school, whether or not it is the only school in its district. In Texas, however, each such school is, in fact, the only school in its district. In a real sense, as we have seen, Texas single-unit schools are *districts* as well as schools.

This account of the simultaneous realization of the supposedly competing objectives of equity and cost efficiency suggests that having more than one single-unit school in a district would diminish its attractiveness. The uniqueness-in-district that is a defining characteristic of single-unit schools in Texas *is* a common feature of many K-12 schools (Howley & Harmon, 2000). But it does not characterize all single-unit schools still in existence.

Concepts: Expenditure Per Pupil

We have measured cost in terms of expenditure per pupil. Funk and Bailey (1999), however, in their Nebraska research, judged cost per graduate to be a superior measure of cost efficiency. After all, one virtue of smaller school size is a lower dropout rate.

Similarly, Stiefel, Berne, Iatarola, and Fruchter (2000) measured cost in terms of total budget per pupil and total budget per graduate. Neither measure revealed the cost inefficiencies commonly attributed to small schools.

Whatever the virtues of per-graduate measures, their calculation requires dropout data which covers all grades in the schools being analyzed (Stiefel, Berne, Iatrola, & Fruchter, 2000, p. 33). Twenty-five percent of our Texas high schools, however, have five or more grades, and information on dropouts is often not reported for lower grades. Our choice of the traditional expenditure per pupil measure, therefore, was dictated by the information available in our Texas data set. Its use, together with use of our grade-level-expense weighting variable (described previously), nonetheless means that the findings reported here probably represent *conservative* estimates of cost efficiency.

Multi-Level Analysis?

With the individual high school as the unit of analysis, an obvious strategy would be to conduct a multi-level analysis, with school districts constituting the second level (schools within districts). As it turns out, however, while only 11.6 percent of the schools are of the single-unit variety, 72.6 percent of the districts operate just one high school. This yields an average within-group sample size of 1.27. High schools and districts are thoroughly confounded in the organizational structure of public secondary education in Texas, a situation common to many states. In short, for this analysis, the multi-level approach is simply inapt. (Note 13)

In addition, Singer (1987) has shown that with small within-group sample sizes, and small residual intra-class correlations, standard errors of regression coefficients are diminished very little by intra-class correlation, and tests of significance are reliable (Note 14). In all our analyses, deflation of standard errors due to intra-class correlation is less than two percent (Singer, 1987, pp. 224-226).

Conclusions

As with seven previous analyses, we have found that as school size increases, achievement test score costs associated with having economically disadvantaged students in schools increase, as well. This finding has now proven robust across seven states and at least four different regression model specifications. This degree of consistency is rare, indeed, in educational research.

We have also found that, while administrators and policy makers are correct in their judgment that school size is negatively related to costs, that is far from the whole story, at least with regard to expenditure per pupil. The negative relationship between size and expenditure per pupil becomes increasingly tenuous as school size increases, and eventually savings become negligible.

In addition, organizational factors, especially as manifest in the distinctive components of the single-unit school, reveal unanticipated relationships to *cost reduction*. If we were designing schools *solely* to minimize expenditure per pupil (an educationally counterproductive goal in the view of the authors), the best configuration might very well be a large single-unit school.

However, if we were also interested in balancing expenditure per pupil with achievement-based equity, the best configuration seems to be a *small* single-unit school. While decreased size would increase costs, a (logged) value of 1 on HIGHSKLS (equaivalent to approximately 3 high schools in a district) and a value of 13 to 15 on LEVELS would *substantially* diminish costs (Note 15). This makes the achievement advantage of small schools (where they are most needed, that is, in impoverished communities) more affordable than previously expected.

This study once again corroborates the manner in which SES regulates the relationship of school size to school performance. The findings have proven to be unusually robust, which makes them difficult to dismiss. This study's findings with regard to ways to reduce school costs without increasing size are more tentative, and our explanations of them are more tentative as well. Nevertheless, *in the effort to resolve the aim of achievement equity within manifest fiscal constraints, it seems time to consider the issue of district organization and school grade span configuration.*

Acknowledgement

The findings reported here are perhaps surprising, but not miraculous. Support for this study was provided, in part, through a contract from the Policy Program of the Rural School and Community Trust during the academic years 1997-8 and 1998-9. We thank Marty Strange and his staff for their continuing interest in the research itself and for their commitment to interpret the findings to a wide audience.

Notes

1. Evidence from a related study conducted with Alaska data (Huang & Howley, 1993) , which included several blocks of contextual, student background, and school-level process variables, suggests that the interaction effect may be robust. Using individual-level data, the interaction term remained significant after entry of all blocks of relevant data.
2. The controlled vocabulary of the ERIC database includes "grade span configuration" as an "identifier," but not as a "descriptor." Descriptors are main indexing terms and are adopted after a lengthy and formal deliberation; identifiers may be coined by any ERIC clearinghouse at any time and serve as proto-descriptors. As of this writing, "grade span configuration," added in the early 1990s, had been used to index just 4 items.
3. These are sometimes referred to as "union schools" (e.g., in the Southeast) or "unit schools" (e.g., in the West) schools.
4. All independent variables originate with the Texas Department of Education. In particular, PCTINST is computed by dividing the DOE's dollar value for instruction by "total campus budget." Approximately 80 percent of PCTINST, which varies among schools, is accounted for by teacher salaries.
5. These three programmatic terms are included for the sake of model specification as *control variables* hypothetically associated with increased EPP. Our analytical focus, however, remains organizational rather than programmatic. One anonymous reviewer of an earlier draft of this article observed that most children eligible for special education services are not in full-time programs (PCTSPECL). We recognize this fact, of course, but for our purposes, PCTSPECL is a *proxy* for the additional cost of providing special services in a school. The correlation of PCTSPECL and EPP is positive, as expected r = +.53); S/TRATIO, however, predictably covaries with PCTSPECL r = -.44) and the net influence of PCTSPECL (in the multivariate analyses) becomes statistically nonsignificant when both independent variables appear in our equations.
6. A full discussion of the use of partial derivatives in this fashion appears in Bickel and Howley (2000) and in Howley (1995).
7. This is *not*, readers unfamiliar with economic analysis should note, case weighting as used in in analyses of data produced by oversampling, but an application of a simple weighted average serving as a *proxy* for average differences in cost, statewide, by educational level. The variable incorporates these norms into a single, school-wide metric as a control variable, once again for the sake of model specification.
8. The Texas case, we think, is illustrative of the larger policy issue of size and grade span configuration. One of the authors

(Howley) has consistently argued that the ratio of total school enrollment to grade span is the most proper metric of school size. That metric, however, makes it impossible to treat the influence of grade span configuration separately from school size. Separating the two issues allows for grade span configurations other than the dominant 9-12 arrangement (10-12, 7-12, 5-12, or, indeed, K-12).

9. In a survey of all unit schools nationally, two-thirds of responding superintendents indicated that their school district operated a single school--the K-12 unit school in question. All responding Texas superintendents indicated their schools were in this category. Among the other states, most seemed to maintain unit schools principally on this model. States where unit schools were more frequently part of multi-school districts included Alabama, Alaska, Louisiana, and Mississippi (Howley & Harmon, 2000a).
10. That is, the moderately strong correlation did not introduce multi-collinearity problem, which means we can affirm that as SIZE increases, EPP declines, and as S/TRATIO increases, EPP declines.
11. The possible value combinations of the independent variables in the partial derivative are considerable, and so are the possible effect sizes that are the function of such values. In Table 7, then, The 12 values of the relevant independent variables chosen to illustrate the range of effect size variation, then, are merely illustrative. For another application of this sort of illustration, see Bickel & Howley, 2000; see also note six for reference to the use of partial derivatives to estimate effect sizes across this series of studies.
12. In Table 7, recall that HIGHSKLS is logged, so that a value of 0 (ln=0) is equivalent to an unlogged value of 1, indicating a single high school, the category to which all single-unit schools belong.
13. Because we were more interested in policy matters than in the conditions of instruction, we did not plan for a multi-level analysis of students within schools; individual-level information was not part of our data set.
14. We provide significance levels on the assumption that "A population...in a given time interval includes not only the actual history represented by the values that were in fact observed but also the potential history consisting of all the values that might have occurred but did not. The population so defined is obviously an infinite one....This view underlies virtually all policy-oriented research in economics and econometrics" (Kmenta, 1997, p. 4). The use of significance levels also provides one rubric, when a study population so closely represents the universe, for judging practical significance. In this study, we dismiss as practically insignificant influences that do not attain levels of statistical significance.
15. Recall that $e^1 \sim 2.72$; that is, the unlogged value of ln=1 is e, or approximately 2.72.

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Is Washington State an Unlikely Leader? Progress on Addressing Contingent Work Issues in Academia

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Abstract

Higher education workers in Washington State are challenging the use of contingent academic labor. This article examines data and policies relevant to the state's reliance upon part-time faculty in community colleges. Data from the State Board for Community and Technical Colleges is juxtaposed with results from a survey completed by 20% of the part-time faculty in 14 community colleges to show that most do not work part-time by choice. The quantitative analysis underlies a subsequent examination of legislative and court solutions pursued in Washington State. Despite significant spending constraints, the state shows signs of being in the national vanguard as it addresses contingent academic labor issues.

College and university educators in Washington State are stepping up their resistance to belt-tightening measures that increase reliance upon contingent academic labor. While results thus far are mixed, several signs suggest that the state is on the cutting edge the issue. Positive omens include the passage of a state initiative that provides cost of living adjustments for kindergarten through community college teachers, a 20 million dollar state down-payment that reduces the part-time community college teacher wage gap, a court challenge against the exclusion of part-time instructors from benefits, and, a state plan to increase the number of full-time faculty lines at community colleges. These initiatives constitute a ray of light on the otherwise darkened landscape of higher education.

This article will first highlight the state context in which faculty concerns have risen. Having laid that groundwork, I report on the parameters within which contingent academic work now occurs within the state's community colleges. Next the discussion turns to how part-timers have mobilized and the effect they have had on policy. The article concludes by examining some of the challenges in the immediate future.

A Financial Outlook on Higher Education in Washington State

Washington's higher education faculty has become more assertive as the severity of restraints on state funding for education has increased. Washington's perennial fiscal crises have been compounded by unorthodox fiscal constraints. The state is one of eight that have no income tax. Additionally, under Initiative 601, passed in 1994, expenditures were capped to grow no faster than population and inflation combined. Because the educational constituency has grown faster than these limits, officials find themselves trying to fund higher education on the cheap.

That the community college system forms the bedrock of the state's higher education infrastructure is symptomatic of these financial difficulties. During 1999-2000 there were approximately 125,000 state-funded full-time equivalent community college students [FTE]. By contrast, the four-year colleges enrolled only 28,000 state-funded freshmen and sophomores, along with 41,000 additional undergraduates at the upper division level. The difference in lower and upper classman at the four-year schools is partly made up by the annual inflow of approximately 11,000 new transfer students from the community colleges each year. Given state data indicating 27% of community college entrants (87, 500 students by headcount as opposed to FTE) intend to transfer to a four year institution, it is evident that the vast majority of students intending to complete a bachelors degree begin their higher education in Washington State via the two-year college system (SBCTC, 2000A).

The funding formulas for higher education are a likely factor accounting for this pattern. The State Board for Community and Technical College's [SBCTC] 2001-03 biennium budget request makes the case that community colleges receive less than four thousand dollars in state funding per student compared to regional institutions, where per student funding is approximately five and one half thousand. Funding differentials are exacerbated by the state's recent policy shift enabling colleges to retain their own tuition dollars. Thus, in addition to the $1,500 difference in general fund revenue, tuition disparities increase the shortfall in per student spending at the community colleges to a figure between $2,500 and $3,500 (SBCTC 2000B).

Washington State community colleges, like those almost everywhere else, have consistently been under-funded relative to their four-year peers. The lower funding formula was one of the attractions of building out the community college system in the early 1970s. Although five new upper division campuses were inaugurated in 1990 in order to encourage students to complete their bachelor degrees, coordination has been difficult and upper level enrollment growth much slower than anticipated. The "seamless education" that was the talk of the 90s has clearly not patched the system together. One consequence is that the state is ranked 46th in the nation in the production of four-year degree holders.

As if panaceas like "seamless education" were not bankrupt enough, in 1997 Governor Locke advanced the idea of the "virtual university." Expansion of brick and mortar education was declared financially infeasible and in its place he proposed on-line distance education as a substitute to accommodate increased enrollment. Patterned after the now financially plagued Western Governors University, Locke's proposal quickly generated opposition at the University of Washington as 600 faculty signed petitions rejecting the idea. But financial pressures continue. Within the University of Washington, the cause of contingent academic workers caught hold and teaching assistants organized to demand their own union in the Spring of 2000. In the fall, the Faculty Senate closed ranks behind the TA's and asked the administration to recognize their union. UW President McCormick took the bold step of reversing a long-held administration policy and announced an agreement in which the TA's and the University would jointly approach the legislature to request enabling legislation establishing a framework under which TA bargaining rights will be established and negotiations be conducted. However, when the state legislature failed to pass the legislation the University refused to grant exclusive bargaining rights to the TA s. The teaching assistants went out on strike during the June final exams and vow to jumpstart their campaign again next year.

Statewide faculty demands for higher wages continue to heat up the issue of union bargaining rights at four-year colleges and universities. Despite the absence of state enabling legislation, a faculty union at Eastern Washington has now operated successfully for several years. However, at Central Washington University the issue has also been raised but amiable relations appear distant. Some University of Washington professors continue to press for enabling legislation, but the future of such legislation is now linked to the standoff with the teaching assistants at the institution. Even with all these issues percolating, it is among the part-time faculty at the state's community colleges that the most inequitable situations exist.

Failing to rally forces around an anti-601 initiative, the Washington Educational Association sponsored, and the Washington Federation of Teachers ultimately endorsed, a citizen's referendum which guaranteed teachers from Kindergarten through Community College raises in line with the cost of living. In a statewide election the referendum passed overwhelmingly. Unfortunately, that stopgap measure complicated the task of closing the pay differential between part-timers and full-timers because it reduced the pot of money to be spent raising part-time salaries. In June and July of 2001 the governor extended the legislative season with three special sessions to break the deadlocks surrounding budget issues. Despite the budget wrangling, part-timers have corralled another 7.5 dollars from the legislature to help close their pay gap.

The Part-time Issue in Washington's Community Colleges

Washington State is a leader in community college education. Whether that is something to brag about depends upon what you look at. The state's faculty is among the most creative in developing new models of teaching. With help from the Washington Center for the Improvement of Undergraduate Education, the state's community college system has successfully championed learning communities in which questions are investigated using teams of faculty from different disciplines. In another show of quality, President Clinton touted one of Shoreline Community College's job training programs as a national model. In these and other areas the state's community colleges demonstrate drive and originality. Lurking beyond these positive images are the problems created by inequities in faculty employment.

A May 2000 report from the National Center for Educational Statistics makes clear that the pattern of part-time employment in Washington is not unique. According to their national survey, sixty two percent of the 255,000 instructional faculty and staff working in the nation's two-year schools were employed part-time. Because part-timers averaged less than half the course load taught by full time teachers (2.1 courses per semester vs. 4.5), part-time faculty instructed roughly 43 per cent of the systems students (NCES, May 2000, pp. 39 and 78). Washington SBCTC data places the state almost dead even with this national average. While the use of part-timers in Washington accelerated in the early 1990s, that increase has practically halted (Best Practices Task Force, 1996). (Note 1) Since 1995 the percentage of part-timers has risen less than 1%. It appears likely that lobbying by part-timers was a factor in changing the trajectory of part-time employment.

The magnitude of part-time faculty participation in the instruction of community college undergraduates forced the 1996 Best Practices Task Force to admit that the adjunct system had been abused. Hiring exceeded the level which could be justified educationally: "[B] udget reductions, increased enrollment that is not fully funded, and similar requirements to 'do more with less' all create a powerful incentive for colleges to employ adjunct faculty for purely economic reasons--to deliver needed services within available budgets" (Best Practices, 1996, p 4).

The incidence of part-time faculty is uneven across the community college system. Some colleges find ways to hire more full time faculty, just as some programs within colleges are less deeply affected. Overall, rural colleges are less dependent on adjuncts, largely because they find it difficult to recruit them. Likewise, technical colleges, where job training predominates, are staffed almost entirely by full-time instructors.

The use of part-timers is most disproportionate within the Basic Skills area, particularly in English as a Second Language [ESL] courses. Part-time instructors taught slightly over 69% of the FTE course-load in Basic Skills courses throughout the state system.

Humanities, where part-time instructors taught 48% of the courses, occupied second place. In only three of eight broad classifications were fewer than 40% of courses taught by part-timers: These divisions include Mechanics and Engineering 25%; Social Sciences 36%; and Science 37%.

Table 1 demonstrates that the proportion of classes taught by full-timers rises substantially when we remove the roughly 15% of classes taught during the evening, off the main campus, and those relying on non-state funds. One may justify this exclusion under the assumption that these are the arenas in which the "flexibility" of a part-time faculty is necessary. This exercise reduces the incidence of part-time instruction from 43% to 30% of FTE class instruction. However, breaking down totals by division continues to reveal the same patterns of part-time employment: The three divisions in most dependent upon part-time employment are, in descending order: Basic Skills (50%), Humanities (39%), and Math (33%).

Table 1
Use of Part-timers in Washington State, Fall 1999

(For All Courses On-campus, Day, State Funds)

Academic Area	PT FTE Courses Taught	Total FTE Courses Taught	PT FTE Courses Taught	Total FTE Courses Taught
Basic Skills	391.03	563.51	81.78	161.95
	69.39%		50.50%	
Business, Data	357.88	871.51	136.48	535.04
Processing	41.06%		25.51%	
Humanities	596.02	1232.88	351.41	898.97
	48.34%		39.09%	
Math	217.22	493.76	120.99	360.39
	43.99%		33.57%	
Mechanical	152.94	603.3	58.83	424.78
Engineering	25.35%		13.85%	
Public Service	477.25	1110.22	207.4	689.82
	42.99%		30.07%	
Science	145.9	394.04	66.23	279.12
	37.03%		23.73%	
Social Science	157.13	434.13	75.96	300.27
	36.19%		25.30%	
Totals	2495.37	5703.35	1099.08	3650.34
	43.75%		30.11%	

Source: Compiled from Washington State Board for Community and Technical Colleges Data.

To learn more about part-timers preferences and work history, the Washington Federation of Teachers surveyed faculty at 14 of the institutions at which it is the bargaining representative. Surveys were given to union representatives to distribute to all part-timers on their campuses. Five hundred fifty five separate surveys were returned. While the method of distribution and collection leaves open the probability of sample bias, these surveys provide a legitimate basis to draw conclusions when appropriate qualifications are noted. Statistical results must be regarded as suggestive, not as precise population estimates.

In anticipation of the survey results, it is helpful to examine potential sources of bias. Surveys were distributed through campus mailboxes. However, some part-timers do not have mailboxes, while others do not teach at the central campus of their institution and may not have been reached. Although campus leaders at some colleges made a concerted effort to exhort their part-timers to return the surveys, at other campuses surveys were returned on a more casual basis.

It is important to determine whether the returned surveys constitute a representative cross section of faculty at the colleges. In Table 3, we can see that some of the 8 major disciplinary categories used by the State Board to define subject area, such as Basic Skills and Humanities, are significantly over-represented. Responses in the Sciences and Social Sciences, however, more closely reflect the distribution of faculty by those areas. Given the varied response rates, it is probable that the survey as a whole is biased toward faculty more aggrieved by part-time issues. Thus, results are best interpreted as indicating the direction of change of employment concerns as specific variables change.

Table 2
Number and Percentage of Returns from Washington State Community Colleges

College[*]	Prime[1] Affiliation	%	Headcount[2]	Total[3]	%
Centralia	14	11%	128	21	16%
Edmonds	81	28%	294	106	36%
Everett	32	16%	196	39	20%
Peninsula	25	17%	149	26	17%
Pierce County	28	8%	343	34	10%
Seattle Central	44	13%	328	57	17%
Seattle North	31	10%	303	48	16%
Seattle South	23	9%	267	34	13%
Shoreline	65	22%	294	93	32%
Skagit Valley	37	19%	195	48	25%
South Puget	38	24%	160	47	29%
Tacoma College	35	13%	269	49	18%
Whatcom	45	29%	157	47	30%

Yakima Valley	25	14%	182	26	14%
Overall	523	16%	3265	675	21%

[1] Faculty assigned to schools according to their stated primary affiliation

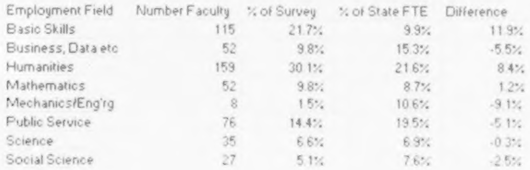
[2] Percentages are calculated using state data for Fall 1999 as shown. These data are for all Part-time faculty, including those on contract funding, teaching at night or on other campuses.

[3] Calculated using all data from faculty who taught at school, regardless whether they identified this is primary affiliation. It is appropriate to group responses by college when looking for college wide information but because some faculty taught at more than one campus, both the state's total of 3265 faculty and the survey total of 675 involve double counts.

[4] Only colleges with total response rate in excess of 10% included.

The survey was designed to provide information on two primary concerns. First the survey intended to gage whether part-time faculty prefer greater levels of employment. Second, the survey was designed to permit an investigation into categories that might help us understand those preferences.

Table 3
Distribution of Faculty by Academic Field of Employment



Employment Field	Number Faculty	% of Survey	% of State FTE	Difference
Basic Skills	115	21.7%	9.9%	11.9%
Business, Data etc	52	9.8%	15.3%	-5.5%
Humanities	159	30.1%	21.6%	8.4%
Mathematics	52	9.8%	8.7%	1.2%
Mechanics/Eng'rg	8	1.5%	10.6%	-9.1%
Public Service	76	14.4%	19.5%	-5.1%
Science	35	6.6%	6.9%	-0.3%
Social Science	27	5.1%	7.6%	-2.5%

Clearly, not all part-timers desire full-time employment. However, the WFT survey indicates that 50% did, while an additional 18% said they wanted more work than they have presently secured through their community college jobs. The percentage of those reporting dissatisfaction is thus very large.

Table 4 indicates that the majority of faculty reported they were either the only wage earner in their family, or that that teaching was the primary source of their income. Fully 59% (n=505) of the individuals surveyed reported that part-time teaching was the primary source of their personal income. Additionally, 34% (n=174) reported that their earnings were the only source of income in their household. Within the 27% (n=136) of respondents who reported their community college teaching as both the only source of income in their household and as their primary source of income, nearly 84% said they wanted more work (n=21) or full-time work (n=114). Preferences for full time work were also higher when individuals were the only breadwinners in their household (63% compared to 50% among all survey respondents), and also when earnings from teaching were the primary source of individual income (also 63%). Thus a sizable group indicated that community college income contributed significantly to their livelihood and, among these, the majority indicated a desire for additional employment.

Table 5 indicates that faculty prepared in traditional disciplines within the arts and sciences rely more heavily upon their part-time teaching income, at least as indicated by their relative preference for full-time or increased work. Thus, survey results show that 85% of social science, 76% of humanities, and 74% of science faculty prefer more work than they presently have. By contrast, those serving in non-traditional academic areas, such as Public Service or Business, are somewhat less likely to seek greater teaching employment. Mathematicians, curiously, appear to fall outside the expectations for traditional arts and science faculty.

Table 4
Sources of Household Income

		Not Primary	Primary
NOT ONLY	331	167	163
As % of Total	66%	33%	32%
ONLY	174	38	136
As % of Total	34%	8%	27%
Total	505	205	299
		41%	59%

Source: WFT Survey

Responses were to the following questions: 1) Is this your primary source of income? 2) Is yours the only source of income in your household?

The final point to note is that many of the faculty appear to have adjusted to this system as best they can. Those faculty who want to work full-time reported that they taught an average of 3.33 classes in the Fall quarter of 1999. Within this group, those who identified themselves as depending primarily upon their community college earnings averaged 3.46 classes per quarter. By contrast, those who indicated that they were satisfied with their teaching load reported an average of 2.17 class per quarter. The SBCTC, on the other hand, reports that average workloads are lower, and that only 45% of part-time faculty taught more than one course in fall 1997. While sample bias may account for some of this difference, the SBCTC figures, too, are biased reflections of overall teaching duties because they omit courses that were not state funded or that were outside the community college system altogether (SBCTC, Research Report 98-4).

There is interest in the phenomenon known as the "freeway flyer," in which part-time teachers work at more than one campus to make ends meet. Some 248 of survey respondents reported teaching at two or more institutions. Among these, 90 said they taught at three or more colleges. This finding is at odds with SBCTC data indicating only 27 persons statewide taught at three or more colleges. It also casts doubt on the state's conclusion that only 291 faculty systemwide taught at two campuses. The discrepancy may be explained in two ways. First, the state's analysis was not designed to verify employment at private institutions, nor at four-year schools. Second, in addition to listing schools at which they were currently teaching, individuals in the WFT survey may have responded to the question by citing institutions at which they had recently taught. The state board, by contrast, using in-house date data could restrict its analysis to a single quarter. Thus the State Board concludes that freeway flyers constitute 13% of the part-time faculty, whereas the WFT survey suggests that employment at multiple campuses is more common, especially when considered over longer employment periods. The WFT survey means the part-time faculty travels more, teaches more, and spends more time job searching then is generally appreciated. The educational consequences of these patterns have not been adequately studied.

Table 5
Preference for More Employment Teaching by Field

Employment Field	Want Full Time	Want More Work	Content	% Want More
Basic Skills	54 (46%)	23 (20%)	37 (32%)	67%
Business, Data etc	19 (36%)	14 (27%)	18 (35%)	63%
Humanities	97 (61%)	25 (16%)	33 (21%)	76%
Mathematics	21 (40%)	4 (8%)	26 (50%)	48%
Mechanics/Eng'rg	4 (50%)	1 (13%)	3 (37.5%)	63%
Public Service	25 (33%)	19 (25%)	28 (37%)	58%
Science	20 (57%)	6 (17%)	8 (23%)	74%
Social Science	20 (74%)	3 (11%)	4 (15%)	85%

Source: WFT Survey

The main findings derived from the WFT survey are not controversial. Clearly, Washington State relies very heavily upon part-time faculty, and officials themselves believe that this reliance is greater than is educationally justifiable. In investigating the problem, the State has reached the conclusion that it is important to reduce this reliance. The WFT's data suggests that, if anything, the State still underestimates the extent of the problem. From the vantagepoint of the part-time faculty member there is much to be gained by improving employment security. To the extent that adverse employment and working conditions affect the community colleges, a point which the State has conceded, the education students receive at community colleges will be advanced by converting some part-time faculty positions into full-time position and by improving the compensation package for part-timers.

Organizing Part-timers in Washington

Policy in Washington State has clearly been influenced by a number of campaigns on behalf of part-time community college faculty. One result, noted earlier, is that in opposition to the national trend involving an increased reliance upon part-time faculty, in Washington that trend has been ended. In addition, pay and benefit conditions are being raised, albeit at an inadequate pace. Much of the state's progress traces directly back to two legislative decisions begun in 1995 and 1996. In 1995 the state redefined its unemployment laws to establish the eligibility of part-time faculty for unemployment compensation. Second, and perhaps more important, the legislature inaugurated a Best Practices Task Force regarding part-time instruction.

This task force was the legislature's response to agitation by part-timers that dates back, at least, to the early eighties. It wasn't until 1990s, under Susan Levy's leadership, that the Washington Federation of Teachers, seriously began to champion the part-time cause. This transition became even more pronounced when the WFT employed Wendy Rader-Konofalski, a former part-timer, as the WFT legislative representative in Olympia. Working through the union, Rader-Konofalski succeeded in getting legislative priority for the issue. In significant measure the WFT was spurred on by Keith Hoeller and the Washington Association of Part-Time Faculty [WAPFAC]. This advocacy group worked independently, creating a second fulcrum upon which to pry open state policy. Through direct lobbying and publicity WAPFAC maintained pressure on both the legislature and the WFT, ensuring that the part-time issue did not die in intramural union politics. Together Rader-Konofalski and Hoeller--perhaps unwittingly--created an inside/outside strategy that kept everyone on their toes. Although disagreements have at times surfaced, WFT and WAPFAC's successor, the Washington Part-Time Faculty Association have worked more closely in recent years to good effect.

The two organizations have succeeded in forging alliances with the Worker Center, King County's Labor Council, Seattle Union Now, the University of Washington's Labor Center, and the Center for a Changing Workplace. Together, these groups create visibility for the permatemp and contingent labor force issue. Over the long haul, it has been the efforts of rank and file part-timers that successfully muscled the state into appointing its Best Practices Task Force. The Task Force established a foundation for continued legislative action by officially recognizing the abuses inherent in the part-time system and acknowledging that these abuses arose as the consequence of financial pressures. While the limited use of part-timers could be justified in low demand disciplines, in fields were scarce expertise is needed, or even when colleges can not flexibly respond to scheduling needs with their existing full-time faculty, the Task Force acknowledged that part-time staffing had gone beyond these rationales.

The Task Force found fault with a the part-time employment system because it provided virtually no incentive for faculty to commit themselves to the classroom, to provide needed service to the campus, department or community, and because the system utilized poor selection, recruitment and development tools. To remedy these problems the Task Force made several recommendations. First, academic departments should develop a written policy on the appropriate use of part-timers to guide their actions. Second they should improve the recruitment process to ensure quality part-time hires while improving and smoothing opportunities for transfer from part to full time positions. Third, the Task Force recommended that administrators should provide written and early employment commitments for part-time faculty. It also encouraged multiple quarter contracts, rather than quarter by quarter renewals. Other best practices involving evaluation, development, communication, support and recognition were also put on the table.

To make earnest its support for the task force recommendations Earl Hale, Executive Director of the SBCTC, announced that the State Board would seek twenty million dollars over the 1997 to 1999 biennium to address faculty issues, including part-time salary and benefit inequities. Ultimately the state authorized a maximum of 7.7 million dollars to address part-time issues. Following this, a number of specific initiatives were taken that, cumulatively, have begun to make a difference for part-timers. Most significantly, in 1996 the WFT drafted and secured legislation to ensure that part-timers that work at least 50% receive the medical benefits to which they were entitled. A clear method of calculating percentages of employment time was established to prevent the state from denying those claims. Summer benefits have remained a point of contention and are one of the subjects in a major court challenge now underway. On a more positive note, the most direct indication that the state takes the problem seriously was the legislature's decision, in 1999, to dedicate twenty million dollars to adjust part-time pay upwards. In doing so, the legislature abandoned language that would have settled for the SBCTC's goal for part-timers--76% of full time pay--and appears to have adopted the WFT's goal of 100% parity. The pay adjustments achieved to this date still leave part-timers far from either goal, but state actions stand in stark contrast to years of previous neglect. In June 2001, despite a very difficult session the legislature voted another 7.5 million dollars for pay equity.

As a percentage FTE instruction, the use of part-timers has not expanded in any appreciable degree since 1995, but neither has it been reduced. After discussions with the union, the SBCTC created plans to change the part-time/full-time faculty mix by adding some 360 full positions statewide in the current biennium. However, that plan appears to have been abandoned in the light of current budget difficulties. Hope for conversions must now rely upon success in achieving pay equity, which will act to minimize the demand for part-timers for purely economic reasons. The cost of providing benefits may begin to tip incentives away from part-time hires even without 100% pay equity.

Conclusions

Despite real accomplishments, ominous clouds continue to mark the sky. As always, money is extremely tight in the state capitol, Olympia, and the part-time situation has been complicated by new state initiatives, one limiting taxes and another increasing pay for teachers from kindergarten through community college. In this fiscal environment nothing is certain.

On the other hand, pressured by law suits, lobbying, and public relations campaigns, Washington's SBCTC appears poised to resolve the situation, if for no other reason than to avoid costly liability. The prospect of an expensive court suit related to contingent work practices has grown since December 12, 2000, when the Vincainzo Case against Microsoft was settled. To resolve that suit, Microsoft consented to a 97 million-dollar payment to permatemp workers who claimed they were wrongfully denied benefits the company provided to its other employees. At the behest of Keith Hoeller's WPTFA the law firm that represented those plaintiffs, Bendich, Staughbaugh and Strong, is now arguing in a separate case that part-time community college faculty are being denied benefits they rightfully deserve. One irony is that this suit would have no little basis in law if the state had not acquiesced when the WFPTA and the WFT pressed for, and secured, best-practice legislation in the mid-nineties. The subsequent 1996 WFT bill spelled out the method by which part-timer's eligibility to participate in benefit plans was to be determined. The new lawsuit seeks retroactive faculty benefits for up to twenty years, during which time the state allegedly calculated hours erroneously so as to deprive part-timers of their pension and health benefits.

In an interim decision, Judge Steven Scott has determined last year that faculty teaching 50% or more are entitled to summer health benefits if they work at all at during that period. If complied with this interim decision may conflict with another high priority part-time concern: the ability to collect unemployment benefits. In particular, many part-timers desire unemployment compensation during summer and other times when colleges fail to provide them with classes to teach. By securing summer benefits, the claim of temporary employment may be weakened as part-timers begin to look more like full time faculty, for whom a nine-month contract is presumed to be full time yearly employment. Perhaps the ultimate test of the success of the part-time movement in Washington State will come when part-timers are treated well enough that they will be able to choose between the reasonable assurance of multi-quarter contracts with benefits and unemployment compensation during quarters when they don't teach. In April of 2001 the WFT secured a victory that should ease unemployment claims. The bill declares that part-time employment offers contingent upon enrollment, funding, or scheduling does not constitute reasonable assurance of employment.

In the meantime the law firm of Frank and Rosen is pressing yet another case arguing that the state's method of paying part-timers is seriously flawed. Presently, not only does the state not provide reasonable assurance of continued employment, the plaintiffs in this case claim, instead, the state misstates the employment relationship altogether. The plaintiffs argue that community because colleges pay part-timers only for each class-contact hour, the state violates its own minimum wage and overtime laws. Although the case faces a variety of obstacles, it constitutes one more pressure point toward the implementation of the best practices that enumerated in 1996.

The state continues to show modest incremental leadership in slowly tackling the worst of the contingent labor practices in academia. Perhaps the greatest danger on the horizon is degree to which different elements of the education community are increasingly being pitted against one another for sparse funds. The fact that the legislature provided financial relief for part-time faculty, but refused to pass enabling legislation for the teaching assistants at the University, suggests something of the constrained choices facing the higher education community.

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Note

1. A legislatively appointed Task Force reported that the use of part-timers had increased 6 percentage points, from 42 to 48% of FTE between 1990 and1995. It should be noted that the Task Force Report apparently included full time faculty who moonlight additional courses for extra income. Thus, 5% of these 48% are not part-timers.

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Significance of Test-based Ratings for Metropolitan Boston Schools

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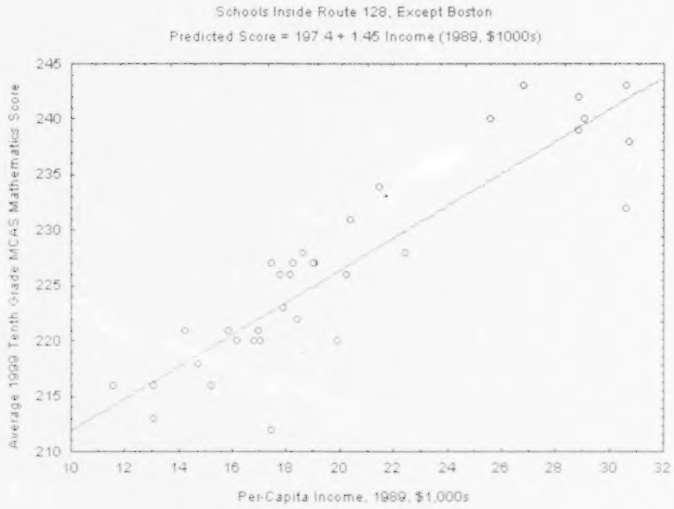
Abstract

In 1998 Massachusetts began state-sponsored, annual achievement testing of all students in three public school grades. It has created a school and district rating system for which scores on these tests are the sole factor. It proposes to use tenth-grade test scores as a sole criterion for high school graduation, beginning with the class of 2003. The state is treating scores and ratings as though they were precise educational measures of high significance. A review of tenth-grade mathematics test scores from academic high schools in metropolitan Boston showed that statistically they are not. Community income is strongly correlated with test scores and accounted for more than 80 percent of the variance in average scores for a sample of Boston-area communities:



Once community income was included in models, other factors--including percentages of students in disadvantaged populations, (Note 1) percentages receiving special education, percentages eligible for free or reduced price lunch, percentages with limited English proficiency, school sizes, school spending levels, and property values--all failed to associate substantial additional variance. Large uncertainties in residuals of school-averaged scores, after subtracting predictions based on community income, tend to make the scores ineffective for rating performance of schools. Large uncertainties in year-to-year score changes tend to make the score changes ineffective for measuring performance trends.

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Section 1: Background

A. State Testing in Massachusetts Public Schools

The most recent form of state testing in Massachusetts public schools is the Massachusetts Comprehensive Assessment System (MCAS), a set of achievement tests sponsored and produced by the Massachusetts Department of Education and administered in the spring of years beginning in 1998 (see Appendix 1 and Bolon, 2000). These tests have four sections: English language arts, mathematics, science and technology, and history and social science. For the years 1998-2000, tests were administered in grades 4, 8 and 10. Beginning in April, 2001, the former grade 4 test sections were divided between grades 4 and 5; new tests have been added in grades 3, 6 and 7.

MCAS tests are loosely timed and include questions in multiple choice, short answer and extended answer formats; they are provided in English and Spanish. All public school students are required to take MCAS tests; there are no "opt-out" provisions. Students taught in parochial schools, other private schools, home schooling and out-of-state schools are not required to take or pass MCAS. For 1998 through 2000, the Department of Education has published test questions used for scoring approximately six months after test administration (see Mass. DoE, 2000g, for example). It has produced new test forms each year. According to current plans, starting with the class of 2003 minimum scores on the English language arts and mathematics sections will be required to graduate from high school (Mass. DoE, 1999f) and to enroll at state colleges, except for MCAS test preparation courses at two-year colleges.

The Massachusetts Department of Education publishes MCAS results as scaled scores in a range of 81 scale points, using the integers 200 through 280 (Mass. DoE, 2000h). The Department assigns labels it calls "performance levels" to four scaled score intervals (Mass. DoE, 1998b) and currently considers 220 the minimum passing scaled score on all test sections (Mass. DoE, 1999f). The Department has not fully disclosed details of assigning scale factors, assuring consistent scores across test forms or assuring that scores quantitatively reflect published academic standards. It has not published distributions of either raw scores or scaled scores. It has released limited information about test design and properties in "technical reports" for the years 1998 (Mass. DoE, 1999c) and 1999 (Mass. DoE, 2000i). After an independent analysis of score averages by "racial" and "ethnic" categories for 1998 (Uriarte and Chavez, 1999), the Department published its own analysis of this type for 1999 (Mass. DoE, 2000c).

Massachusetts tests appear to rank near the high end of state achievement tests in difficulty, although failure rates are lower than those for some tests used in Arizona and Virginia. As in several other states, substantially higher failure rates are found on mathematics than on language tests in high schools. Since the tenth-grade version of the mathematics test section sets the graduation threshold for most students, its scores have been used as subjects for these studies.

B. Schools in the Boston Metropolitan Area

Metropolitan Boston is diverse. Besides the City of Boston it includes many smaller municipalities, all operating their own school systems. These studies consider communities inside Route 128, a highway designed in the late 1940s (now an Interstate), enclosing areas within about 9-12 miles from Boston's government center--that is, Boston and its inner and middle suburbs. They share a public transit system, several public and private utilities, and an economy dominated by service industries. They include poverty areas, concentrations of wealth, middle-income communities, prosperous suburban towns, a few medium-sized cities and one large city. The areas are bounded by the Massachusetts Bay and Atlantic Ocean to the east, Salem and Peabody to the north, Waltham and Newton to the west, and Braintree and Quincy to the south (see Metropolitan Area, 1997).

Schools in the Boston metropolitan area are also diverse. These studies, focusing on testing for graduation, consider only high schools. While a majority of the area's population of high-school age attends public schools, (Note 2) a substantial proportion attends parochial schools that began to be established by the Roman Catholic Church more than 150 years ago. A smaller fraction is taught in other private schools or though home schooling. The Metropolitan Council for Educational Opportunities (METCO), founded in 1963, uses state funding to help send over 3,000 Boston minority students to suburban schools (Orfield, et al., 1997).

Within public school systems there is also substantial diversity. All communities must support regional "vocational," "technical" and "agricultural" high schools. Some such schools began as "manual training" schools in the 1800s. Some communities have closed their local vocational schools; some have merged them with their academic schools. These studies look in detail only at academic schools, because the curriculum of vocational schools is substantially different and is not designed to prepare students for MCAS tests, an issue of controversy (Nicodemus, 2000). For purposes of these studies there are difficulties with a few communities, including Cambridge, Quincy, Revere and Waltham, which provide vocational education in the same facilities as academic programs (Mass. DoE, 2000f). I chose to include such schools in these studies while noting their special characteristics.

Several communities also operate experimental schools, including "pilot schools" in Boston and "charter schools" in several communities (Partee, 1997, and Wood, 1999), as regulated under the Massachusetts Education Reform Act of 1993. All that offer ninth-grade curriculum and above are smaller than the regular academic schools. These schools provide motivational environments and may exercise indirect forms of student selection that differentiate them from other public schools. Primarily because of concerns about small sample sizes, schools with fewer than 100 students per grade are excluded from these studies. So far no experimental school is that large.

The City of Boston presents a unique situation. Of its large academic high schools, three are exam schools: the Boston Latin School (founded in 1635) and the more recent Latin Academy (formerly Girls Latin) and O'Bryant School of Mathematics and Science (formerly

Boston Technical). These draw away many Boston students who tend to score well on achievement tests, promoting a longstanding social stratification in Boston schools. Over half the students at Boston Latin come to it from parochial and other private schools (Daley, 1997); some say those students would not otherwise attend Boston schools. However, other public school students who are not admitted leave the district for high school. Starting in 1975, because of federal court orders to desegregate, exam school admission policies included a 35 percent set-aside for African American and Latino students, maintained voluntarily after 1987. As a result of another federal court decision (McLaughlin, 1996), this approach was weakened in 1997. As with academic schools that provide vocational education, the Boston exam schools are included in these studies, but their special characteristics are noted.

C. Statewide MCAS Test Results

Table 1-1 shows that statewide, tenth-grade MCAS test scores have remained nearly constant in English language arts and in science and technology for the years 1998-2000, while scores in mathematics have risen substantially (Mass. DoE, 2000h). (Tenth-grade tests were not given in history and social science.)

Table 1-1
MCAS Statewide Results, 1998-2000

Section	Year	Average	% Level 4	% Level 3	% Level 2	% Level 1
English	2000	229	7	29	30	34
English	1999	229	4	30	34	32
English	1998	230	5	33	34	28
Math.	2000	228	15	18	22	45
Math.	1999	222	9	15	23	53
Math.	1998	222	7	17	24	52
Science	2000	226	3	23	37	37
Science	1999	226	3	21	39	38
Science	1998	225	1	21	42	36

Source of data: Mass. DoE, 2000h

Table 1-1 reflects Massachusetts Department of Education practice of recording students absent for a test section as scoring 200 and in Level 1, the lowest level (Mass. DoE, 2000h, Table 11 footnote). An undisclosed fraction of students were excluded from testing because of special conditions and are not counted in this report; others may have been provided with an alternative assessment. As currently planned, students in Level 1 will be ineligible to graduate from high school as of 2003. Based on this record of scores, about half of all Massachusetts public school students are at risk of being denied graduation.

The labels of the four "performance levels" designated by the 1998 Board of Education(Note 3) for reporting MCAS results are:

- Level 4, "**Advanced**"
- Level 3, "**Proficient**"
- Level 2, "**Needs Improvement**"
- Level 1, "**Failing**"

Although these levels have qualitative descriptions (Mass. DoE, 1998b), there are no quantitative links to levels of achievement specified in academic standards; content of standards has not been prioritized; nor have standards been promulgated through state regulations, as anticipated by law. (Note 4) Although Massachusetts law requires "competency determination" in mathematics, science and technology, history and social science, foreign languages and English, (Note 5) Massachusetts laws and regulations continue to require only US history and physical education as subjects of instruction. Massachusetts tries to set legal standards for learning indirectly (Note 6) through MCAS tests, procedures to set scale factors, and regulations for minimum scaled scores. It lacks corresponding legal commitments for instruction. It has made major changes to "curriculum frameworks" every few years (Mass. DoE, 2000k) and has not provided reasonable spans of time for instruction to catch up before using revised "curriculum frameworks" as a basis for revised MCAS tests. Its teachers, parents and students cannot find out exactly what must be learned in order to meet minimum standards for high school graduation. The 1993 Education Reform Act left several such problems; few have been addressed yet by the Massachusetts legislature or Board of Education.

Students with disabilities (also called special education students) and students with limited English proficiency (LEP students) tend to receive drastically lower MCAS scores than other students, although some students with disabilities are soon to be provided alternate assessments (Mass. DoE, 2000l), and some LEP students have been able to take tests in Spanish (Mass. DoE, 2000d). The Department of Education has not disclosed the fractions of students who are eligible for or have utilized its special accommodations, although it has published statewide summary data using these student categories (Mass. DoE, 2000i, Table 14.5). Most minority students also receive lower scores than other students. The Department of Education has published 1999 statewide and district summary data for students categorized as "African American / Black," "Asian or Pacific Islander," "Hispanic / Latino," "Native American," "White" and "Mixed" (Mass. DoE, 2000c, Tables 5-10). As previously noted, most students in vocational programs receive lower MCAS scores than students in academic programs; this can readily be shown for the state's more than 30 vocational, technical and agricultural high schools (Appendix 2).

Based on the sources of information cited, Table 1-2 shows statewide impacts of these known risk factors on average 1999 tenth-grade mathematics scores and rates of failure.

Table 1-2
MCAS 1999 Grade 10 Math Scores by Risk Factors

Category	Average Score	Percent Failing
All students	222	53
Students with disabilities	203	92
Limited English proficiency	206	84
African American	209	80
Hispanic / Latino	208	85
Native American	211	77
Vocational, technical, agricultural	210	78

Source of data: Mass. DoE, 2000i

The Department of Education has not reported scores classified by other potential risk factors on which it collects information. These include: Gender of students, Tests taken in Spanish or as alternate assessments, Free or reduced price lunches, as indicators of poverty, Schools with large class sizes, especially in early grades, Students retained below grade or placed below grade level, Teachers who lack certification in their subjects of instruction.

There is also little published information about combinations of risk factors. However, since the Department of Education lists regional vocational, technical and agricultural schools as separate districts in its reports of MCAS results, it is possible to use their categories of minority students (Appendix 2). For those schools for which categories are reported, results are shown in Table 1-3.

Table 1-3
MCAS 1999 Grade 10 Math Scores by Combined Risk Factors

Combined Category	Average Score	Percent Failing
Vocational + African American	203	97
Vocational + Hispanic / Latino	205	95

Sources of data: Mass. DoE, 2000i, Mass. DoE, 2000h

While the results in Table 1-3 are not strictly comparable with Table 1-2, because not all the schools and categories can be found in published data, they indicate that factors can combine to worsen the scores of students with more than one risk factor.

D. Test Score Studies

Recent studies question assumptions that "high-stakes" tests like MCAS can provide valid measures of either student achievement or school performance, showing gains on them that are not matched by gains on other tests for closely related educational content (Haney, 2000, and Klein, et al., 2000). Political environments of "high-stakes" tests create heavy pressure to improve scores, regardless of underlying educational progress. For "low-stakes" tests aimed at measuring long-term trends, like those of the federal NAEP, it has been shown that "family variables explain most of the variance across scores in states" (Grissmer, et al., 2000, Chapter 9). Individual and longitudinal studies demonstrate strong influences of parenting practices, family structure, parent education and degrees of poverty on cognitive development (for example, Smith, et al., 1997). Other longitudinal and cross-sectional studies show cumulative responses of test scores to educational environments (for example, Phillips, et al., 1998, and Ferguson, 1998). However, the data generally available for test score research fail to capture much of the critical information needed to understand development of cognitive abilities and educational achievement in the settings of public schools.

MCAS test scores have already been the subject of several attempts to explain, predict or interpret them (Mass. DoE, 2001, Gaudet, 2001, Tuerck, 2001a, and Tuerck, 2001b). These prior MCAS test score studies fall into three main categories: 1) Trends studies of year-to-year and multi-year changes; 2) Effects studies involving social factors for the population; 3) Effects studies involving operating factors for the schools.

Research on scores from school-based standard tests suggests that many such studies are likely to yield results of low significance. Grissmer, et al., 2000, among others show that:

- Real year-to-year changes in average student performance, as assessed by conventional tests, are relatively small; they can easily be masked by statistical uncertainties.
- Social factors are strongly associated with test scores.
- Self-reported social information tends to have high error and omission rates.
- Census and other community-based social information often includes confounding factors that require adjustment to reflect the households for a school population.
- Uncategorized school spending is only weakly associated with test scores.

The MCAS test score studies cited use scores and statistical data to estimate the performance of schools or districts according to simple formulas, unsupported by other evidence. They frequently present results in a table that is ranked or can be ranked like the teams in a sports league. The "league table" approach to presenting such results begs the question of whether the ordering of schools or districts and the differences in performance estimates have educational significance, that is, whether such rankings may instead be largely matters of chance or be associations with factors other than school performance. This article presents a trends study and an effects study I conducted to explore the significance that can be associated with such results.

E. Sources of Data

The school characteristics used in these studies are taken from information reported by public schools to the Massachusetts Department of Education for 1999 and published by the Department (Mass. DoE, 2000f). MCAS test scores summarized by schools are from 1998-2000 Department reports (Mass. DoE, 2000h). Other information is published by the Department for school districts, including program budgets and percentages of special education students. Information for census tracts and communities is available from the US Bureau of the Census and other sources. Data analysis for these studies focuses on information associated with individual schools because aggregate information for school districts or general populations can mask school characteristics. Data used in these studies are reproduced in Appendix 3 and Appendix 4; interested readers can confirm them at the sources and can repeat these studies or perform other analysis with them.

The Department of Education and the school districts collect other potentially useful information that is not currently published. Of particular interest are data on class size and teacher preparation. Recent research has shown significant association of educational achievement as measured by "low-stakes" tests with small class size in elementary schools (Nye, et al., 1999, and Krueger, 1999) and with teacher certification and education (Darling-Hammond, 2000), after adjustments for student backgrounds. Studies of the development of cognitive abilities cast doubt on whether other information currently published by government sources about population and economic characteristics in large geographical areas would substantially improve the understanding of test scores.

A. Trends Study of Variability

This study considers 47 academic high schools in 32 metropolitan Boston communities through the average tenth-grade MCAS mathematics test scores recorded for years 1998-2000. Achievement tests in mathematics typically require substantial skill at language interpretation (see, for example, Gipps and Murphy, 1994, Chapter 6, p. 183). Haney, 2000, in a study of another state, found stronger correlations of state mathematics test scores with grades in English than with grades in math. As previously noted, the tenth-grade mathematics test is used in this study of significance because it sets a graduation threshold for most students.

Test boycotts have been organized by students in several schools each year (Steinberg, 2000), involving 10 to 31 percent of students in 19 cases out of the 141 test samples. To be able to compare average scores of schools more accurately, the average scores reported by the Department of Education have been adjusted by removing the scores of 200 that were assigned to students who did not take the test, averaging only scores of students who participated.

Table 2-1 shows changes in schools' average scores (Appendix 3) between 1998 and 1999 and between 1999 and 2000, expressed in units of scale points and of standard deviations.

Table 2-1
MCAS Grade 10 Math Test Score Changes by School, 1998-2000

		Changes 1998-1999		Changes 1999-2000	
City or Town	**High School**	**Points**	**Delta**	**Points**	**Delta**
Arlington	Arlington	4	3	5	-1
Belmont	Belmont	-2	-4	4	-2
Boston	Boston High	1	0	6	0

Boston	Brighton	2	1	3	-4
Boston	Charlestown	-1	-2	4	-2
Boston	Dorchester	-2	-3	1	-5
Boston	East Boston	1	0	5	-1
Boston	Hyde Park	0	-1	1	-5
Boston	Jeremiah Burke	4	3	3	-3
Boston	South Boston	0	-1	5	-1
Boston	The English High	1	0	4	-2
Boston	West Roxbury	3	2	5	-1
Boston Exam	Boston Latin	8	10	8	3
Boston Exam	Latin Academy	3	2	19	17
Boston Exam	O'Bryant Science	4	4	8	3
Braintree	Braintree	-1	-3	13	10
Brookline	Brookline	2	1	5	-1
Cambridge	Rindge & Latin*	-2	-5	-1	-10
Chelsea	Chelsea	1	0	3	-4
Dedham	Dedham	1	0	11	6
Everett	Everett*	5	5	-3	-12
Lexington	Lexington	-1	-3	5	-1
Lynn	Classical	0	-2	7	1
Lynn	English	1	0	11	7
Malden	Malden	2	1	4	-3
Marblehead	Marblehead	-5	-7	9	3
Medford	Medford*	2	1	7	1
Melrose	Melrose	1	0	2	-5
Milton	Milton	-1	-3	4	-2
Newton	North*	-3	-6	9	5
Newton	South	2	1	10	5
Peabody	Veterans*	1	0	6	0
Quincy	North Quincy	3	2	7	1
Quincy	Quincy*	-2	-4	8	3
Revere	Revere*	2	1	6	0
Salem	Salem*	1	0	4	-2
Saugus	Saugus	4	3	7	1
Somerville	Somerville*	-1	-3	2	-5
Stoneham	Stoneham	-6	-8	8	2
Swampscott	Swampscott	16	17	-1	-8
Wakefield	Memorial	-3	-5	4	-2
Waltham	Waltham*	-1	-3	8	3
Watertown	Watertown	10	10	2	-4
Weymouth	Weymouth*	0	-2	5	-1

Winchester	Winchester	-1	-3	6	0
Winthrop	Winthrop*	5	4	4	-2
Woburn	Woburn	0	-2	11	7

* school providing vocational education
Source of data: Appendix 3

A "delta" is a change in scale points between two years, minus the average change for the year span, divided by a standard error of the change that is estimated from test reliability and number of participants. The uncertainty for one test score is based on an average standard error of 6.7 scale points, from reliability estimated by the Department of Education for the tenth-grade mathematics test of 1998, using randomized split-half comparisons (Mass. DoE, 1999c). The variance of an average score for a school is estimated by the square of this quantity, plus variance contributed by roundings, divided by the number of test participants.

A delta expresses the change for a particular school beyond the average change, in units of estimated standard errors. When standard errors are accurately estimated, deltas outside +/- 2 are statistically significant at the $p < .05$ level, but here about half of the schools in both year spans have deltas well outside this range. Especially large deltas were those shown in Table 2-2.

Table 2-2
Large Changes in MCAS Grade 10 Math Test Scores, 1998-2000

High School	Year Span	Delta
Boston Latin	1998-1999	+10
Latin Academy	1999-2000	+17
Braintree	1999-2000	+10
Rindge & Latin*	1999-2000	-10
Everett*	1999-2000	-12
Swampscott	1998-1999	+17
Watertown	1998-1999	+10

* school providing vocational education
Source of data: Table 2-1

Statistically large deltas occur about ten times as frequently as they would by chance, were test reliability the only factor in standard errors. Since deltas adjust for changes in test difficulty and in average efforts at teaching, learning and test preparation, there appear to be other factors affecting test score changes that differ from school to school and from year to year. However, the Department of Education has not published any studies on other variability factors.

Table 2-3 reflects data for all 47 schools included in this study, showing the average score changes in scale points for the 1998-2000 years, weighted by numbers of test participants.

Table 2-3
Average Changes in MCAS Grade 10 Math Test Scores, 1998-2000

Year span	Average point change	Standard error from test reliability
1998-1999	+1.3	0.1
1999-2000	+5.9	0.1

Source of data: Table 2-1

The average score change for all schools would be highly significant for both year spans at the $p<.0001$ level and better if test reliability were the only factor in variability. Scatterplots of score changes in Figure 2-1 and Figure 2-2, showing deltas for a span versus average scores in 1998, do not indicate strong relationships but show possible outliers; they are schools noted in Table 2-2. These plots of year-to-year changes provide a picture of the variability in school-averaged test scores, which is much greater than estimates based on test reliability and number of test participants. Evaluating year-to-year point score changes, excluding three cases that have deltas beyond +/- 10 as outliers, yields a practical measurement of variability for school-averaged MCAS test scores.

Figure 2-1: Changes in MCAS Grade 10 Math Test Scores, 1998-1999

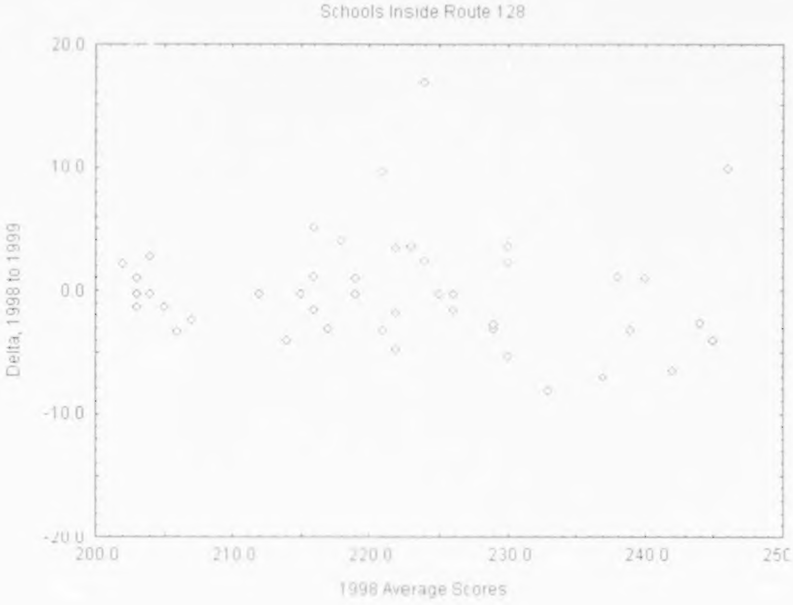
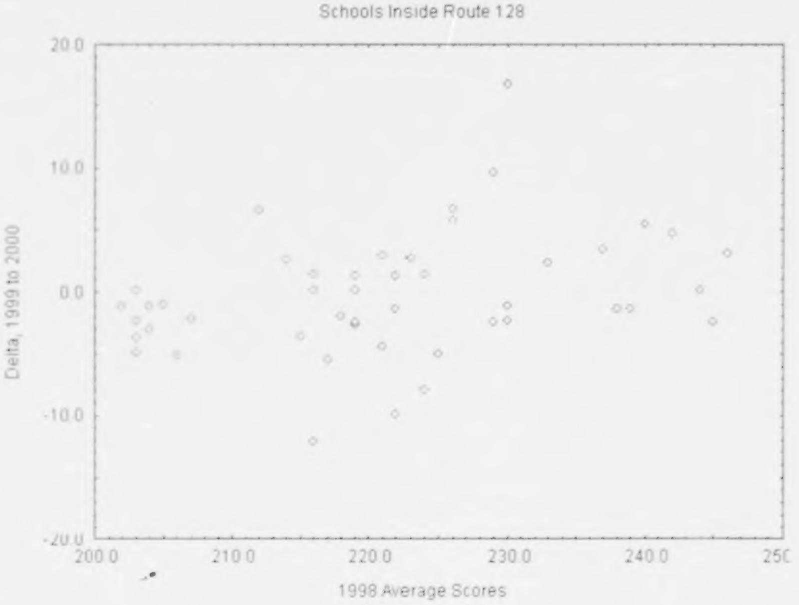


Figure 2-2: Changes in MCAS Grade 10 Math Test Scores, 1999-2000



Standard deviations of school-averaged score change, less average score change for a year span for all schools, are 2.9 scale points for 1998-1999, 3.1 scale points for 1999-2000 and 3.0 scale points for both spans combined. These are about five times larger than the uncertainty estimated on the basis of test reliability. As one might expect, scatterplots of score changes in scale points versus school sizes show greater variability for smaller schools. An analysis found that an equivalent standard error in scale points for school averages of grade 10 MCAS mathematics test scores can be estimated as the constant 33. divided by the square root of the number of test participants. This estimate of standard error combines contributions from test reliability with random variations in student mental alertness, student backgrounds and school performance. For typical metropolitan Boston schools from these studies, school-averaged test score gains, losses or differences of less than about five scale points are not statistically significant at the $p<.05$ level.

Average mathematics score increases from 1998 to 2000 for all schools in these studies combined substantially exceed the rates of change that other studies have found to reflect genuine and sustainable improvements in learning. Based on test reliability as a measure of variance, the change is more than 20 standard deviations; based on calculated variance, it is more than four standard deviations. As noted, other tenth-grade MCAS tests showed little score change. Statistical magnitudes of mathematics test score changes strongly suggest causes other than or in addition to improvements in learning. Anecdotal accounts report heavy efforts at test preparation in some schools, but the general upsweep in scores indicates that the 2000 mathematics test may also have been significantly easier than corresponding 1998 and 1999 tests. Sparse published information from the Department of Education about test calibration makes this issue difficult to trace.

B. Effects Study Involving Social Factors

This study, like the trends study in Section 2A, considers 47 academic high schools in 32 metropolitan Boston communities, through average tenth-grade MCAS mathematics test scores as recorded for 1999. School-specific social factors considered in this study (Appendix 4), as of 1999, are listed in Table 2-4.

Table 2-4
School-specific Factors for MCAS Grade 10 Math Test Scores

Factor	Range of values
A. School population, average per grade	140-495
B. Percent African American	0.5-86.0
C. Percent Asian or Pacific Islander	0.3-31.8
D. Percent Hispanic / Latino	0.2-63.7
E. Percent limited English proficiency	0.0-45.5
F. Percent free or reduced price lunch	1.6-64.3
G. Percent reduction, grades 9+10 to 11+12	12.9-47.0

Source of data: Appendix 4

The factors in Table 2-4 were used as independent variables in linear models for a dependent variable of 1999 school-averaged tenth-grade MCAS mathematics test scores. (Note 7) Residuals from the models are considered as estimators of school performance. Variances and error estimates are calculated by conventional multivariate methods (Bevington and Robinson, 1992).

For 1999, MCAS tests were, in the parlance of US public schools, a "medium-stakes" enterprise, associated with some indirect social pressures but no hazardous consequences for students. No current high school students stood to be denied graduation because of test scores, although summaries of test scores by districts and schools were being published. This was the second year of regular testing. It had been preceded by a year of trial testing, following three years of curriculum specification and test development.

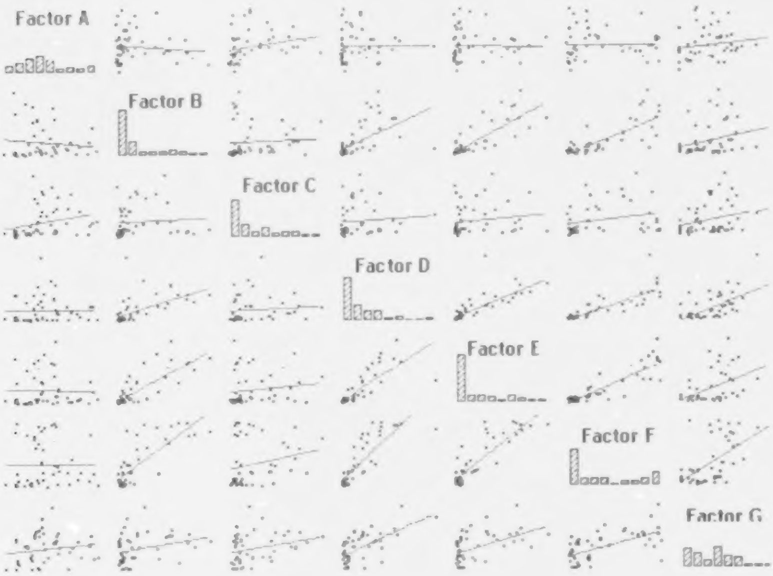
Note that grade size reduction, calculated as a percent decrease in grades 11 and 12 school population as compared with grades 9 and 10, is not identical with dropout rate. While dropout statistics are available, as in other states they are compromised by lack of consistent longitudinal data for educational outcomes. Grade size reduction simply indicates that, for whatever reasons, later year high school grades are smaller than earlier year grades. When substantial, it suggests that many students do not graduate in a normal time sequence. (Note 8) Values in about +/- 5 to +/- 8 percent ranges will be typical of fluctuations for schools of these sizes with stable area boundaries and populations and very low transiency, retention and dropout rates, according to Poisson statistics.

The Department of Education publishes only district information about budgets and special education. Without an accurate means to apportion such measurements to high schools (and in four communities to specific high schools), they have been excluded from consideration.

There is considerable variation. District percentages of special education students ranged from 11.1 to 25.5 percent of all students and grades in 1999. Annual district spending reported for all regular education programs ranged from \$3,986 to \$9,251 per student in 1999. Even within this small group of communities, the Education Reform Act of 1993 failed to equalize school spending.

Factor distributions and correlations for this model are shown in Figure 2-3, a matrix of histograms and scatterplots with unweighted, unconstrained lines of best fit.

Figure 2-3: Factor Distributions for MCAS Grade 10 Math Test Scores



Although there are strong associations in Figure 2-3, such as "Percent Hispanic / Latino" with "Percent limited English proficiency," there are no factors so highly correlated as to be entirely redundant. The numerical correlation matrix is presented in Table 2-5, corresponding to the matrix of plots in Figure 2-3, with all values beyond about +/- 0.5 significant at the *p*<.05 level.

Table 2-5
Factor Correlations for MCAS Grade 10 Math Test Scores

Factor	A	B	C	D	E	F	G
A. School population, average per grade	1.00	-.11	.24	.02	-.03	-.01	.16
B. Percent African American	-.11	1.00	.07	.56	.80	.80	.28
C. Percent Asian or Pacific Islander	.24	.07	1.00	.08	.13	.23	.27
D. Percent Hispanic / Latino	.02	.56	.08	1.00	.77	.84	.65
E. Percent limited English proficiency	-.03	.80	.13	.77	1.00	.88	.50
F. Percent free or reduced price	-.01	.80	.23	.84	.88	1.00	.60

lunch							
G. Percent reduction, grades 9+10 to 11+12	.16	.28	.27	.65	.50	.60	1.00

Sources of data: Appendix 4, Statistica model

Some of the correlations in Table 2-5 are strong enough that multiple regression coefficients are likely to be unstable. Therefore a model was developed in stages, examining factors for significance.

The full model from the factors in Table 2-4 was first evaluated with weights proportional to numbers of test participants. It yielded two strong factors with low correlation (**C** and **E**): "Percent Asian or Pacific Islander" at $p<.02$, with a positive coefficient, and "Percent limited English proficiency" at $p<.002$, with a negative coefficient: Factors for school population and percent grade reduction had particularly small coefficients and low significance. They were removed, and a model with the remaining five factors then associated 67 percent of the variance and produced the factor weights shown in Table 2-6.

Table 2-6
5-Factor Model for 1999 MCAS Grade 10 Math Test Scores

Factor	**Coefficient**	**Standard Error**
Intercept, for all factors zero	229.4	1.936
B. Percent African American	0.047	0.104
C. Percent Asian or Pacific Islander	0.347	0.154
D. Percent Hispanic / Latino	-0.002	0.183
E. Percent limited English proficiency	-0.637	0.217
F. Percent free or reduced price lunch	-0.174	0.157

Sources of data: Appendix 3, Appendix 4, Statistica model

With model factors in Table 2-6, high factor weight and significance found in other studies for percentages of African American or Latino students disappear. Both factors have small coefficients and low significance. Statistical weight that might have been attached to these factors instead follows cultural and economic factors: "Percent limited English proficiency" and "Percent free or reduced price lunch." As an experiment, the model was rerun with the latter factors removed; only 57 percent of the variance was associated, and factor weights became those shown in Table 2-7.

Table 2-7
Racial and Ethnic Model for 1999 MCAS Grade 10 Math Test Scores

Factor	**Coefficient**	**Standard Error**
Intercept, for all factors zero	230.0	2.107
B. Percent African American*	-0.221	0.068
C. Percent Asian or Pacific Islander	0.219	0.156
D. Percent Hispanic / Latino*	-0.435	0.114

Sources of data: Appendix 3, Appendix 4, Statistica model

In Table 2-7, two "racial" or "ethnic" factors (marked *) have become significant at a $p<.05$ level. The coefficient for "Percent African American" has turned from positive to negative, and the coefficient for "Percent Hispanic / Latino" has become strongly negative. It seems likely that these two factors are acting as proxies for cultural and economic factors with more predictive power.

Residuals from the five-factor model of Table 2-6 are shown in Table 2-8. This include standard error estimates based on results from the trends study of Section 2A.

Table 2-8
Residuals for MCAS Grade 10 Math Test Scores, 5-Factor Model

City or Town	High School	Residual	Std. Error	Ratio
Arlington	Arlington	4.6	2.6	1.8
Belmont	Belmont	12.2	2.7	4.5
Boston	Boston High	-8.9	5.1	-1.7
Boston	Brighton	1.7	3.3	0.5
Boston	Charlestown	1.0	4.8	0.2
Boston	Dorchester	-1.6	4.3	-0.4
Boston	East Boston	2.1	4.2	0.5
Boston	Hyde Park	-6.1	4.8	-1.3
Boston	Jeremiah Burke	4.1	5.0	0.8
Boston	South Boston	-8.6	3.7	-2.3
Boston	The English High	11.4	5.0	2.3
Boston	West Roxbury	1.2	3.9	0.3
Boston Exam	Boston Latin	21.3	3.5	6.0
Boston Exam	Latin Academy	4.0	4.1	1.0
Boston Exam	O'Bryant Science	4.65	4.3	1.1
Braintree	Braintree	-1.78	2.5	-0.7
Brookline	Brookline	9.5	2.3	4.1
Cambridge	Rindge & Latin*	-6.3	4.0	-1.6
Chelsea	Chelsea	2.2	7.0	0.3
Dedham	Dedham	-1.6	3.1	-0.5
Everett	Everett*	-2.8	2.6	-1.1
Lexington	Lexington	4.4	2.8	1.6
Lynn	Classical	-6.5	3.3	-2.0
Lynn	English	-5.0	3.9	-1.3
Malden	Malden	-6.6	3.2	-2.1
Marblehead	Marblehead	3.4	3.2	1.1
Medford	Medford*	-7.4	2.7	-2.7
Melrose	Melrose	-2.7	2.7	-1.0
Milton	Milton	-1.7	3.1	-0.6
Newton	North*	8.6	2.3	3.7
Newton	South	10.0	2.8	3.6

Peabody	Veterans*	-7.2	2.5	-2.9
Quincy	North Quincy	-9.2	3.6	-2.5
Quincy	Quincy*	-14.1	3.1	-4.5
Revere	Revere*	-10.3	2.7	-3.9
Salem	Salem*	-1.5	3.1	-0.5
Saugus	Saugus	-2.8	2.9	-1.0
Somerville	Somerville*	2.7	4.7	0.6
Stoneham	Stoneham	-1.7	3.1	-0.5
Swampscott	Swampscott	11.8	3.2	3.7
Wakefield	Memorial	-2.0	2.8	-0.7
Waltham	Waltham*	-7.4	2.6	-2.8
Watertown	Watertown	4.7	3.1	1.5
Weymouth	Weymouth*	-7.0	2.3	-3.0
Winchester	Winchester	12.5	2.9	4.4
Winthrop	Winthrop*	-5.5	3.5	-1.6
Woburn	Woburn	-1.9	2.6	-0.7

* school providing vocational education

Sources of data: Appendix 3, Appendix 4, Statistica model

At first glance, some residuals in Table 2-8 look substantial, several scale points of difference from the average scores predicted by the model. However, residual ratios for most schools are within +/- 2 standard errors, not significant at a $p<.05$ level. Someone familiar with metropolitan Boston will recognize that schools with high and low residual ratios tend to be in high-income and low-income communities, respectively. It therefore seems likely that adding a factor for incomes can increase the predictive power of the model.

The most recent community income data were from the US Census of 1990, for 1989 per-capita income. Comparable 1999 income statistics were not yet available. The Massachusetts Department of Revenue could produce current community income statistics but has not done so; the state continues to use 1989 federal census data on incomes to apportion aid to public schools. After adding 1989 per-capita community income in $1,000s as a factor (Mass. DoR, 1999), without any attempt to adjust incomes so as to reflect school districts or student households, the model associates 80 percent of the statistical variance, and factor weights became those shown in Table 2-9.

Table 2-9
6-Factor Model for 1999 MCAS Grade 10 Math Test Scores

Factor	Coefficient	Standard Error
Intercept, for all factors zero	202.7	5.400
B. Percent African American	-0.020	0.083
C. Percent Asian or Pacific Islander*	0.371	0.121
D. Percent Hispanic / Latino	0.044	0.144
E. Percent limited English proficiency*	-0.695	0.171

F. Percent free or reduced price lunch	0.050	0.131
H. Per-capita community income (1989)*	1.186	0.230

Sources of data: Appendix 3, Appendix 4, Statistica model

Three factors in Table 2-9 (marked *) have substantial significance, at a $p<.005$ level or better, and three have very low significance. Factor weight has shifted from "Percent free or reduced price lunch" to "Per-capita community income (1989)," while "Percent limited English proficiency" retains a large coefficient and high significance. Dropping low-significance factors, the resulting three-factor model is shown in Table 2-10.

Table 2-10
3-Factor Model for 1999 MCAS Grade 10 Math Test Scores

Factor	Coefficient	Standard Error
Intercept, for all factors zero	204.9	4.446
C. Percent Asian or Pacific Islander	0.381	0.109
E. Percent limited English proficiency	-0.626	0.081
H. Per-capita community income (1989)	1.104	0.197

Sources of data: Appendix 3, Appendix 4, Statistica model

The three-factor model of Table 2-10 also associates 80 percent of the statistical variance. All of its factors are statistically significant at a $p<.001$ level.

For each school included in these studies, Table 2-11 presents adjusted average 1999 tenth-grade MCAS mathematics test scores and residuals from the three-factor statistical model of Table 2-10, with the uncertainties in average scores and residuals expressed as standard errors, based on the variance estimate calculated in the trends study of Section 2A.

Table 2-11
Residuals for MCAS Grade 10 Math Test Scores, 3-Factor Model

City or Town	High School	Average	Std. Error	Residual	Std. Error
Arlington	Arlington	234	2.1	4.2	2.4
Belmont	Belmont	243	2.2	6.7	2.7
Boston	Boston High	204	2.9	-10.3	3.1
Boston	Brighton	205	2.2	-0.1	2.9
Boston	Charlestown	206	2.7	-1.6	3.7
Boston	Dorchester	204	3.0	-0.5	3.5
Boston	East Boston	205	2.3	-1.0	2.9
Boston	Hyde Park	203	3.3	-5.0	3.7
Boston	Jeremiah Burke	208	2.7	5.1	3.4
Boston	South Boston	205	2.6	-7.8	3.1
Boston	The English High	204	2.3	9.7	3.7
Boston	West Roxbury	205	2.0	0.0	2.7

Boston Exam	Boston Latin	254	1.7	23.6	2.7
Boston Exam	Latin Academy	233	2.1	5.0	2.8
Boston Exam	O'Bryant Science	227	2.1	4.3	3.4
Braintree	Braintree	228	1.9	1.7	2.3
Brookline	Brookline	240	1.6	-0.5	2.7
Cambridge	Rindge & Latin*	220	1.6	-4.9	1.8
Chelsea	Chelsea	216	2.3	3.7	2.8
Dedham	Dedham	227	2.5	1.3	2.8
Everett	Everett*	221	1.9	2.3	2.5
Lexington	Lexington	238	1.7	-5.8	3.0
Lynn	Classical	216	2.0	-3.3	2.8
Lynn	English	213	2.1	0.9	2.5
Malden	Malden	221	2.0	-2.8	2.6
Marblehead	Marblehead	232	2.7	-6.3	3.6
Medford	Medford*	221	2.2	-2.3	2.5
Melrose	Melrose	226	2.1	-1.2	2.5
Milton	Milton	228	2.3	-2.0	2.6
Newton	North*	239	1.5	0.8	2.5
Newton	South	242	2.0	2.2	2.8
Peabody	Veterans*	220	1.8	-2.9	2.3
Quincy	North Quincy	227	1.9	-7.2	3.0
Quincy	Quincy*	212	2.3	-11.9	2.6
Revere	Revere*	218	1.9	-6.1	2.4
Salem	Salem*	220	2.1	0.7	2.5
Saugus	Saugus	226	2.2	0.8	2.6
Somerville	Somerville*	216	1.8	1.7	2.1
Stoneham	Stoneham	227	2.5	1.5	2.9
Swampscott	Swampscott	240	2.6	7.6	3.0
Wakefield	Memorial	227	2.2	0.6	2.6
Waltham	Waltham*	220	1.8	-4.0	2.1
Watertown	Watertown	231	2.6	4.3	2.8
Weymouth	Weymouth*	222	1.5	-3.8	2.1
Winchester	Winchester	243	2.3	2.8	3.2
Winthrop	Winthrop*	223	3.0	-1.4	3.3
Woburn	Woburn	226	2.0	1.3	2.4

* school providing vocational education

Sources of data: Appendix 3, Appendix 4, Statistica model

Stepwise analysis shows that combinations of the factors in the three-factor model of Table 2-10 associate statistical variance in the amounts listed in Table 2-12.

Table 2-12
Factor Combinations for 1999 MCAS Grade 10 Math Test Scores

Factors	R^2
C	.01
E	.62
H	.47
C E	.65
C H	.52
E H	.74
C E H	.80

C. Percent Asian or Pacific Islander
E. Percent limited English proficiency
H. Per-capita community income (1989)
Sources of data: Appendix 3, Appendix 4, Statistica model

Table 2-12 shows that the major factors are "Percent limited English proficiency" and "Per-capita community income (1989)." Although statistically significant, "Percent Asian or Pacific Islander" is a weak cofactor, associating only 1 percent of the variance by itself.

The three-factor model of Table 2-10 was evaluated for predictions of 1998 and 2000 average test scores. It was not expected to perform as well, since most factor data were for 1999. However, the factor weights and significance proved robust, and the model associated statistical variance as shown in Table 2-13.

Table 2-13
Year Comparisons for MCAS Grade 10 Math Test Scores

Year	R^2
1998	.83
1999	.80
2000	.77

Sources of data: Appendix 3, Appendix 4, Statistica model

The residuals in Table 2-11 suggest systematic contributions to test score averages at some schools that might have been produced by unusual efforts. Probable outliers for the predictive model with correspondingly large year-to-year average score changes had a strongly positive bias: those for Boston Latin, Latin Academy and Swampscott.

Model behavior for metropolitan Boston schools may be biased by special characteristics of City of Boston schools, because the students who score well on school-based standard tests are selected for admission to the three exam schools. (Note 9) Current data also attribute average Boston per-capita income equally to all school districts instead of adjusting by districts or census tracts. The Boston cross-enrollment and busing programs would complicate an income analysis. Behavior of the three-factor model of Table 2-10 was examined for 1999 tenth-grade MCAS mathematics test scores, considering only schools outside the City of Boston. These 34 schools had a 1999 total population per grade of about 10,200 students out of 13,730 for all schools considered in these studies.

When applied only to schools outside the City of Boston, the three-factor model of Table 2-10 showed significance at the $p<.05$ level for "Percent limited English proficiency" and "Per-capita community income (1989)" but not for "Percent Asian or Pacific Islander." A two-factor model based on the first two of these factors, with schools weighted by numbers of test participants, associates 86 percent of the statistical variance. Factor weights became as shown in Table 2-14.

Table 2-14
2-Factor Model for 1999 MCAS Grade 10 Math Test Scores

Factor	Coefficient	Standard Error
Intercept, for all factors zero	201.5	2.934
E. Percent limited English proficiency	-0.325	0.136
H. Per-capita community income (1989)	1.307	0.126

Sources of data: Appendix 3, Appendix 4, Statistica model

Several trial factors were added individually to the two-factor model of Table 2-14, but none showed statistical significance at the $p<.05$ level. The statistical variance associated when each trial factor was added to this two-factor model is shown in Table 2-15.

Table 2-15
Factor Comparison for 1999 MCAS Grade 10 Math Test Scores

R^2	Trial Factor Added
.86	None
.88	**A**. Population per grade
.88	**B**. Percent African American
.86	**C**. Percent Asian or Pacific Islander
.86	**D**. Percent Hispanic / Latino
.87	**F**. Percent free or reduced price lunch
.87	**G**. Percent reduction, grades 9+10 to 11+12
.87	Percent special education
.86	Per-capita property value, 1998, $000s
.88	Spending, regular education, $000s

Sources of data: Appendix 3, Appendix 4, Statistica model

The last three trial factors in Table 2-15 are districtaverages; the last and third from last are for all schools in all grades. Three districts, Lynn, Newton and Quincy, each operate two academic high schools which will not be distinguished by these factors. Outside the City of Boston, only "community income" and "limited English proficiency" are significant contributors to 1999 tenth-grade MCAS mathematics test scores; their indicators are effective predictors.

A one-factor model, using only "Per-capita community income (1989)," performed almost as well as any combination of factors shown in Table 2-15, associating 84 percent of the variance. The factor weight is in Table 2-16.

Table 2-16
1-Factor Model for 1999 MCAS Grade 10 Math Test Scores

Factor	Coefficient	Standard Error
Intercept, for all factors zero	197.0	2.395
H. Per-capita community income (1989)	1.465	0.114

Sources of data: Appendix 3, Appendix 4, Statistica model

"Percent limited English proficiency" is much less effective in a one-factor model, associating only 38 percent of the variance. Community income appears to be the dominant factor associated with these test scores. The 1999 adjusted average tenth-grade MCAS mathematics test scores by school, plus residuals from the two-factor and one-factor models for 1999, shown in Table 2-14 and Table 2-16, with standard error estimates for each, are in Table 2-17.

Table 2-17
Residuals for MCAS Grade 10 Math Test Scores, 1,2-Factor Models

City or Town	High School	Average Score	Std. Error	2-factor Residual	Std. Error	1-factor Residual	Std. Error
Arlington	Arlington	234	2.1	4.7	2.2	5.6	2.2
Belmont	Belmont	243	2.2	6.6	2.4	6.8	2.4
Braintree	Braintree	228	1.9	2.3	2.1	3.7	2.0
Brookline	Brookline	240	1.6	1.4	2.0	0.5	2.0
Cambridge	Rindge& Latin*	220	1.6	-5.0	1.8	-6.1	1.8
Chelsea	Chelsea	216	2.3	4.3	2.7	2.1	2.6
Dedham	Dedham	227	2.5	1.1	2.6	2.1	2.6
Everett	Everett*	221	1.9	2.6	2.1	3.2	2.2
Lexington	Lexington	238	1.7	-3.3	2.2	-4.0	2.2
Lynn	Classical	216	2.0	2.2	2.4	-0.1	2.2
Lynn	English	213	2.1	1.0	2.9	-3.1	2.4
Malden	Malden	221	2.0	2.2	2.2	0.9	2.1
Marblehead	Marblehead	232	2.7	-9.2	3.0	-9.8	3.1
Medford	Medford*	221	2.2	-1.7	2.3	-0.8	2.3
Melrose	Melrose	226	2.1	-1.7	2.3	-0.6	2.2
Milton	Milton	228	2.3	-2.6	2.4	-1.9	2.4
Newton	North*	239	1.5	0.6	1.9	-0.2	1.9
Newton	South	242	2.0	3.4	2.3	2.8	2.3
Peabody	Veterans*	220	1.8	-3.1	2.0	-1.9	1.9
Quincy	North	227	1.9	2.7	2.2	4.5	2.0

	Quincy						
Quincy	Quincy*	212	2.3	-9.4	2.5	-10.5	2.5
Revere	Revere*	218	1.9	-1.3	2.1	-0.5	2.1
Salem	Salem*	220	2.1	-0.4	2.3	-0.6	2.3
Saugus	Saugus	226	2.2	1.2	2.4	3.0	2.3
Somerville	Somerville*	216	1.8	-0.4	2.3	-3.2	2.0
Stoneham	Stoneham	227	2.5	1.7	2.7	3.3	2.6
Swampscott	Swampscott	240	2.6	5.5	2.7	5.6	2.8
Wakefield	Memorial	227	2.2	0.7	2.4	2.2	2.3
Waltham	Waltham*	220	1.8	-2.3	2.0	-1.6	2.0
Watertown	Watertown	231	2.6	3.8	2.7	4.2	2.7
Weymouth	Weymouth*	222	1.5	-3.5	1.8	-1.9	1.7
Winchester	Winchester	243	2.3	1.5	2.7	1.2	2.7
Winthrop	Winthrop*	223	3.0	-1.3	3.2	-0.1	3.1
Woburn	Woburn	226	2.0	1.3	2.1	2.4	2.1

* school providing vocational education
Sources of data: Appendix 3, Appendix 4, Statistica model

In an attempt to improve accuracy of the model in Table 2-14, schools with residuals from the two-factor model for 1999 that were greater than two standard deviations were dropped, Belmont with positive residual and Cambridge Rindge & Latin, Marblehead High and Quincy High with negative residuals. The two-factor model for 1999 scores then produced the factor weights shown in Table 2-18.

Table 2-18
2-Factor Trial for 1999 MCAS Grade 10 Math Test Scores

Factor	**Coefficient**	**Standard Error**
Intercept, for all factors zero	200.6	2.188
E. Percent limited English proficiency	-0.216	0.101
H. Per-capita community income (1989)	1.357	0.095

Sources of data: Appendix 3, Appendix 4, Statistica model

Chi square for the two-factor model of Table 2-18 was 36.2 with 27 degrees of freedom (p=.11). The one-factor model of Table 2-16 was also evaluated for 1999 with the set of cases used in Table 2-18, producing the factor weights shown in Table 2-19.

Table 2-19
1-Factor Trial for 1999 MCAS Grade 10 Math Test Scores

Factor	**Coefficient**	**Standard Error**
Intercept, for all factors zero	197.6	1.793
H. Per-capita community income (1989)	1.463	0.087

Sources of data: Appendix 3, Appendix 4, Statistica model

Chi square for the one-factor model of Table 2-19 was 43.4 with 28 degrees of freedom (p=.03). However, the cases and models from Table 2-18 and Table 2-19 did not provide significant chi square probabilities for 1998 or 2000 scores; all other attempts to improve estimation by removing outliers also proved unstable.

Residuals from the two-factor model of Table 2-14 for schools outside the City of Boston are strongly autocorrelated. The coefficient was .45 between 1998 and 1999 and .67 between 1999 and 2000. Scatterplots for successive years are shown in Figure 2-4 and Figure 2-5, comparing 1998 and 2000 residuals with 1999 residuals:

Figure 2-4: MCAS Grade 10 Math Test Score Residuals, 1998 versus 1999

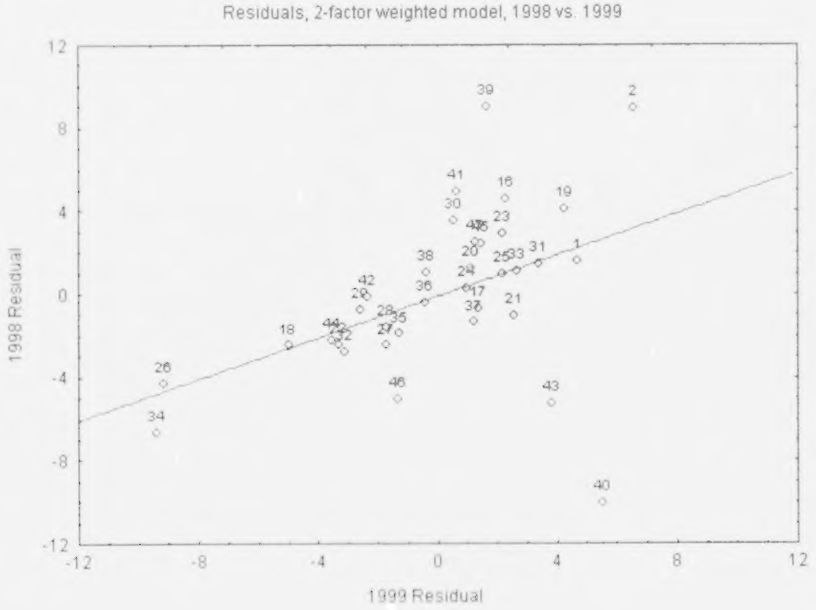
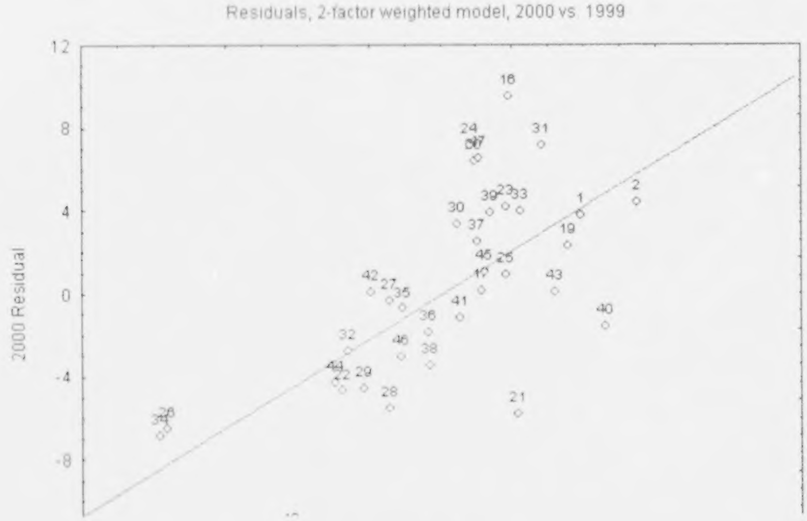
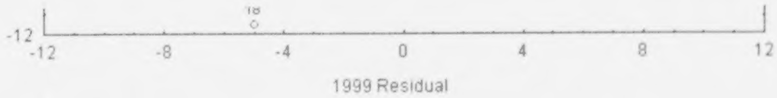


Figure 2-5: MCAS Grade 10 Math Test Score Residuals, 2000 versus 1999





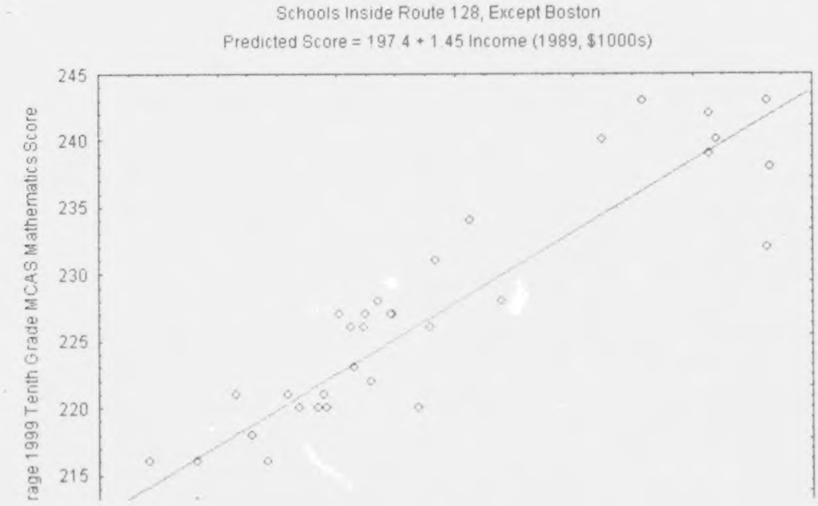
To the extent that a trend can be observed by applying the model of Table 2-14 to different years, it appears that schools scoring higher than predicted tend to increase scores in successive years, and schools scoring lower than predicted tend to decrease scores. Departures from model predictions are not all random. The two spans of years available for analysis suggest a systematic trend that could stratify high-scoring and low-scoring schools.

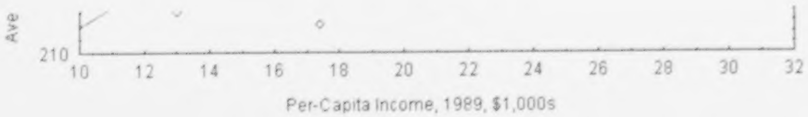
C. Observations

The trends and effects studies presented in Section 2A and Section 2B show how studies of these types tend to yield results with low statistical significance unless "something unusual" is going on. In the cases of the 2000 tenth-grade mathematics test and of the high scores and large increases at Boston Latin, Latin Academy and Swampscott, the studies do indicate "something unusual," although they cannot tell what it is. They also illustrate that commonly published "league tables" of scores strongly reflect social factors associated with school populations, not factors clearly associated with school performance. The effects study shows a robust, positive correlation of scores with household incomes, plus a smaller, negative correlation with limited English proficiency. Factor weights and statistical significance for other factors considered are small. School-based data are not currently published for several potentially significant factors, such as class sizes in elementary grades, mathematics course enrollments and levels of teacher preparation.

By far the strongest factor in predicting tenth-grade MCAS mathematics test scores is "Per-capita community income (1989)." For the schools outside the City of Boston this factor alone performed nearly as well as all available factors combined, associating 84 percent of the variance compared with 88 percent when all available factors were used. The scatterplot in Figure 2-6 shows 1999 average scores for these schools versus 1989 per-capita community income:

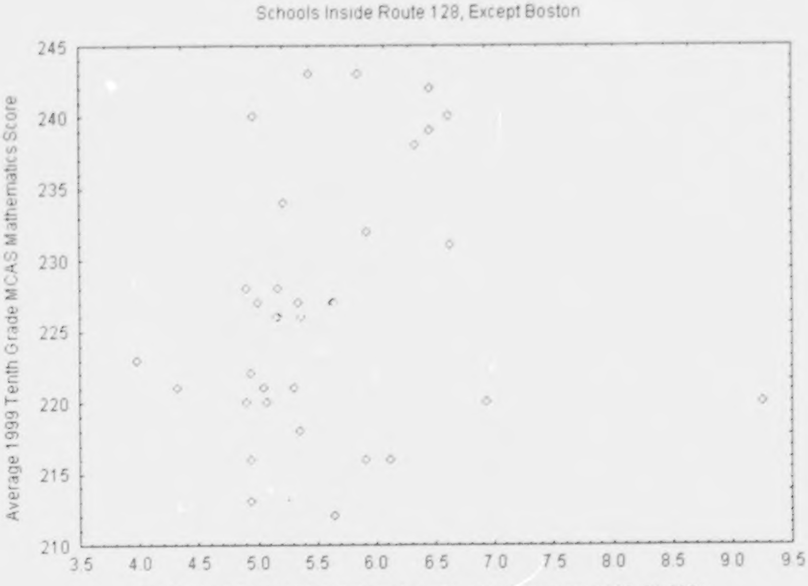
Figure 2-6: 1999 MCAS Grade 10 Math Test Scores versus Community Income





In Figure 2-6, the relation between school-averaged test scores and per-capita community income looks linear over an income range of about 2½ to 1 for this set of schools. There is no obvious threshold or saturation behavior. As it happens, spending on regular education programs in school districts also varies over a range of about 2½ to 1 for those schools (Mass. DoE, 2000f). However, there is only a weak relationship between 1999 spending on regular education programs in those school districts and their 1999 tenth-grade MCAS mathematics test scores, associating only about 3 percent of the variance and not statistically significant at a $p<.05$ level, as shown in the scatterplot of Figure 2-7.

Figure 2-7: 1999 MCAS Grade 10 Math Test Scores versus School Spending



Although a tendency for scores on school-based standard tests to rise with incomes has been recognized in the US for more than 70 years (Bolon, 2000), there has been relatively little research on this phenomenon in ordinary income ranges, compared with the attention given to associations between test scores and conditions of poverty or race. The strong, apparently linear association of average test scores with community incomes shown here, as contrasted with their weak association with school spending, calls for investigation but is beyond the scope of this report. It seems likely that community incomes are providing something beyond what school programs provide, but if so we cannot tell from these data what it might be. Perhaps this effect should not be surprising, since most students spend more than three-fourths their waking hours outside school.

The factor "Percent limited English proficiency" was the second strongest influence on predicted test scores. (Note 10) Previous effects studies of MCAS scores might not have shown this if they failed to utilize the entire variety of school-associated data available, including "limited English proficiency," "racial" or "ethnic," and "free or reduced price lunch" student categories. A hypothesis inviting study is that students classified with "limited English proficiency" might receive mathematics instruction less relevant to curriculum tested by MCAS than other students. Another hypothesis is that strengthening English language instruction for "limited English proficient" students might improve their MCAS mathematics test scores, provided all current efforts to teach mathematics and other subjects are maintained. While statistical associations suggest these conjectures, only observations and experiments could prove or disprove them.

Factors of "Percent African American" and "Percent Hispanic / Latino" did not make significant contributions to school-averaged tenth-grade MCAS mathematics test scores after other factors were introduced. Although "Percent Asian or Pacific Islander" retains statistical significance in certain models for some years, it is a much weaker factor than "Per-capita community income (1989)" or "limited English proficiency." The latter factors, and not "racial" or "ethnic" percentages, provide by far the strongest statistical associations with school-averaged tenth-grade MCAS mathematics test scores in metropolitan Boston. (Note 11)

Statistical significance of test-based ratings has been the principal focus of the studies. Some studies developing or using such ratings do not provide an analysis of variability, without which significance cannot be determined; or they estimate variability from single test session reliability measurements, which were shown to be optimistic (for example, Gaudet, 2001, and Tuerck, 2001a). The trends study in Section 2A of this report provides evidence derived from tenth-grade MCAS mathematics test scores for larger variability estimates.

D. Summary Analysis

My summary analysis is based on a one-factor model for metropolitan Boston communities that each operate only a single academic high school, weighted by numbers of students tested. The effects study showed that "Per-capita community income (1989)" was the dominant factor in predicting 1999 school-averaged tenth-grade MCAS mathematics test scores. All other factors made only small contributions to predictions with much lower significance. From published data, community income could not be estimated reliably for each of the multiple academic high schools in Boston, Lynn, Newton and Quincy. Reduction in scope leaves 28 high schools in the same number of communities, with a total of about 8,200 students per grade recorded for 1999. Estimates of uncertainties in school-averaged test scores are based on findings of the trends study, which showed year-to-year variability of school-averaged scores several times greater than the variability implied by conventional test reliability measurements. Plots of results include uncertainty intervals (sometimes called "error bars") equivalent to +/- 1.4 estimated standard errors. When item intervals do not overlap, when standard errors have been accurately estimated, and when items are uncorrelated, then differences between items are significant at the $p<.05$ level. The one-factor model for 1999 with this set of cases associated 82 percent of the variance and produced the factor weights shown in Table 2-20.

Table 2-20
Community Income Model for 1999 MCAS Grade 10 Math Test Scores

Factor	Coefficient	Standard Error
Intercept, for all factors zero	198.4	2.667
Per-capita community income (1989)	1.397	0.129

Sources of data: Appendix 3, Appendix 4, Statistica model

The 1999 adjusted average tenth-grade MCAS mathematics test scores by school, plus residuals from the foregoing one-factor model for 1999, with standard error estimates for each, are shown in Table 2-21.

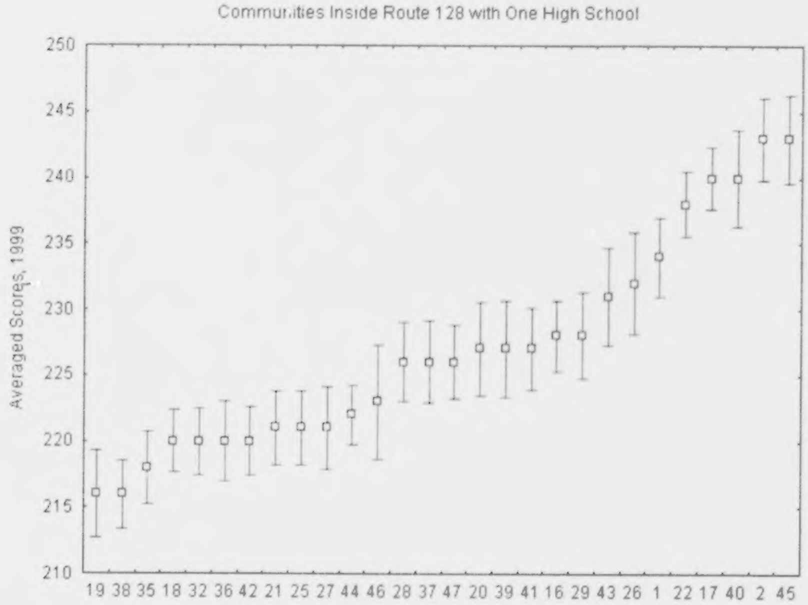
Table 2-21
Residuals for MCAS Grade 10 Math Test Scores, Income Model

City or Town	Average Score	Std. Error	1-factor Residual	Std. Error
Arlington	234	2.1	5.6	2.2
Belmont	243	2.2	7.1	2.5
Braintree	228	1.9	3.5	2.0
Brookline	240	1.6	1.0	2.1
Cambridge*	220	1.6	-6.2	1.8
Chelsea	216	2.3	1.4	2.6
Dedham	227	2.5	2.0	2.6
Everett*	221	1.9	2.7	2.2
Lexington	238	1.7	-3.4	2.3
Malden	221	2.0	0.5	2.2
Marblehead	232	2.7	-9.2	3.2
Medford*	221	2.2	-1.1	2.3
Melrose	226	2.1	-0.7	2.2
Milton	228	2.3	-1.8	2.4
Peabody*	220	1.8	-2.2	1.9
Revere*	218	1.9	-1.0	2.1
Salem*	220	2.1	-1.0	2.3
Saugus	226	2.2	2.7	2.3
Somerville*	216	1.8	-3.6	2.0
Stoneham	227	2.5	3.1	2.7
Swampscott	240	2.6	5.8	2.8
Wakefield	227	2.2	2.0	2.3
Waltham*	220	1.8	-1.9	2.0
Watertown	231	2.6	4.1	2.7
Weymouth*	222	1.5	-2.1	1.7
Winchester	243	2.3	1.8	2.8
Winthrop*	223	3.0	-0.4	3.1
Woburn	226	2.0	2.2	2.1

* school providing vocational education
Sources of data: Appendix 3, Appendix 4, Statistica model

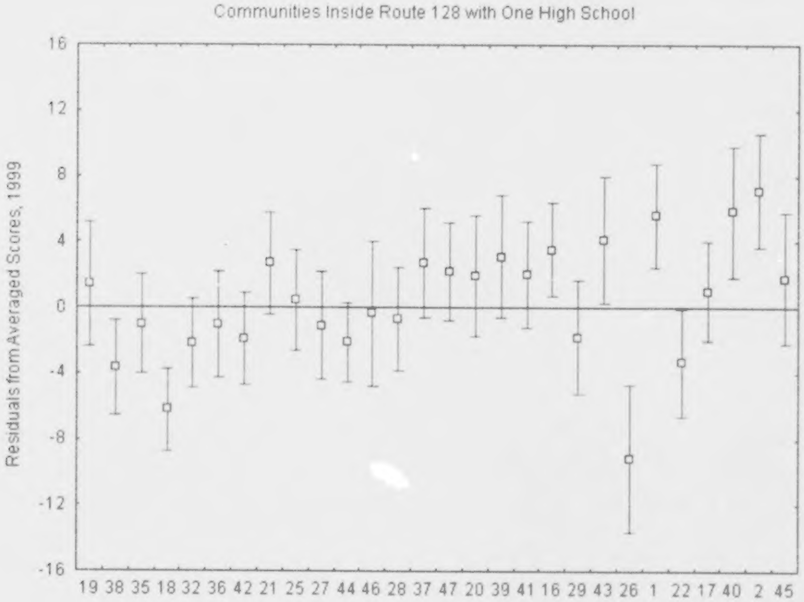
The plot in Figure 2-8 shows school-averaged adjusted scores on the 1999 tenth-grade MCAS mathematics test and the corresponding uncertainty intervals (or "error bars"). In this and the next two plots, the 28 schools considered in this summary analysis have been rank-ordered from the lowest to the highest average scores on the 1999 tenth-grade MCAS mathematics test.

Figure 2-8: Average 1999 MCAS Grade 10 Math Test Scores by School



The plot in Figure 2-9 shows residuals for school-averaged 1999 tenth-grade MCAS mathematics test scores, the differences left after subtracting away predictions calculated from the factor "Per-capita community income (1989)."

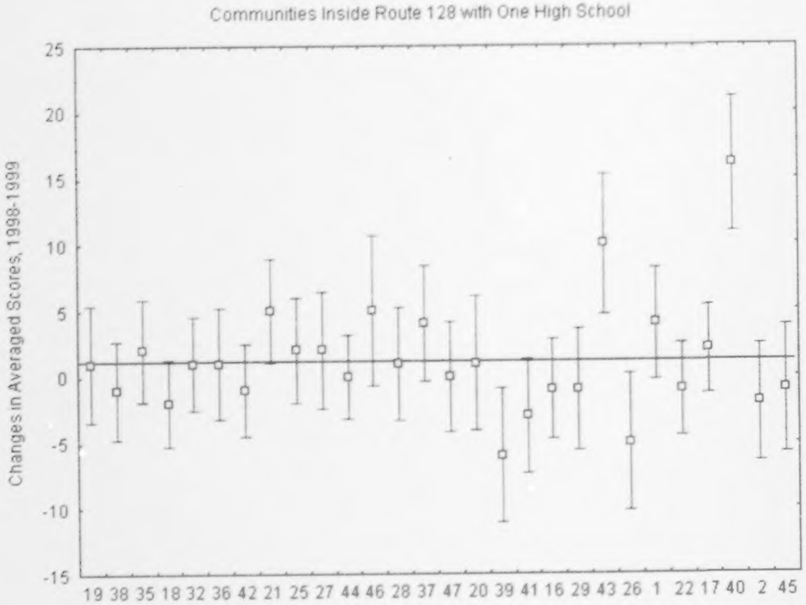
Figure 2-9: Residuals of 1999 MCAS Grade 10 Math Test Scores by School



The picture in the plot of average scores of Figure 2-8, with significant separations between high-scoring and low-scoring schools, is shown by the residuals plot of Figure 2-9 to be associated largely with differences in community income. Chi square for the residuals distribution is 63.2 with 27 degrees of freedom. After subtracting predictions based on community income, residuals of average scores settle to just a little more than statistical noise. Only five or six schools can be reliably distinguished other than by community income.

The last plot, Figure 2-10, shows the changes in school-averaged 1999 tenth-grade MCAS mathematics test scores from the same schools' average scores in 1998.

Figure 2-10: Changes in MCAS Grade 10 Math Test Scores by School, 1998-1999



There was low statistical significance in year-to-year changes of the school-averaged adjusted scores on tenth-grade MCAS mathematics tests between 1998 and 1999. The distribution of changes about an average change of +1.2 scale points, as shown in Figure 2-10, fits a normal distribution with weighted chi square of 22.7 for 26 degrees of freedom ($p = .65$). Despite the possibility of little significance in score changes, such changes are criteria by which the Massachusetts Department of Education has begun to rate school Performance (Note 12) as "Failed to Meet Expectations," "Approached Expectations," "Met Expectations" or "Exceeded Expectations." There are severe penalties, including state closure or seizure, for schools with low scores and ratings of "Failed to Meet Expectations."

The statistical significance of differences in school-averaged scores, aside from their reflection of community income, may not be not enough to compare schools reliably and may not be enough to evaluate short-term changes in teaching and learning. Whatever aspects of school performance these scores might measure can be lost in the fluctuations for a particular school over any one year or few years. Only averages and trends in scores over several years would be likely to yield statistically useful information.

Some observers question whether it is realistic to expect standardized tests to yield significant information comparing school performance, even over a period of years (for example, Rowe, 1999a, and Rowe, et al., 1999b). They argue that variations in student achievement are commonly greater within schools than between schools. Others contend that adaptive and defensive behavior encouraged by "high-stakes" political environments grossly distorts outcomes from all types of educational assessment and robs them of meaning (for example, Sacks, 1999, and Hayman, 1998). It is important to point out that significance attributed to results in these studies is purely statistical. Neither these studies nor any others known to the author have shown that MCAS test scores have practical significance, in the sense of predicting success in adult activities to any greater degree than could be done with knowledge of student backgrounds.

Section 3: Results

A. Opportunities and Questions

In future work, it may be helpful to examine categories of metropolitan Boston schools that were excluded from or specially identified in these studies:

- Vocational, technical and agricultural schools
- Academic schools that also provide vocational education
- Pilot schools, charter schools, specialty schools and small schools

Other questions might be answered by extending data coverage:

- Do other test scores yield similar results?
- Do small class sizes have significant effects?
- Does teacher preparation have significant effects?
- Do math course enrollments have significant effects? (Note 13)
- Can other factors be found that increase significance?
- Are the same effects found in other Massachusetts schools?
- Are similar effects observed in elementary and middle school grades?
- Are the same or different patterns observed in other US metropolitan areas?
- Can income factors be estimated for communities with multiple high schools?
- If individual data were available, would multi-level analysis show different results?

The strong, linear relation found between school-averaged tenth-grade MCAS mathematics test scores in a relatively calm year and community income in a previous year, within ordinary ranges of incomes, leads to several questions. Does community income primarily determine educational achievement, regardless of school performance? Do MCAS and similar tests measure skills and knowledge that are acquired in schools, or do they measure skills and knowledge that are largely acquired outside schools? Do communities with substantially different incomes have substantially different expectations for student performance on MCAS and similar tests? Is current community income also strongly correlated with test scores? After a turbulent period of local efforts to raise scores, will the correlation between income and scores remain as strong? Exploring and understanding some of these issues will require a different approach.

B. Conclusions

Community income has been found strongly correlated with tenth-grade MCAS mathematics test scores and associated more than 80 percent of the variance in school-averaged 1999 scores for a sample of Boston-area communities. The influence of community income was robust against several sets of model variables and cases.

Community income swamped the influence of the other social and school factors examined. Once community income was included in models, other factors--including percentages of students in disadvantaged populations, percentages receiving special education, percentages eligible for free or reduced price lunch, percentages with limited English proficiency, school sizes, school spending levels, and property values--all failed to associate substantial additional variance.

Large uncertainties in residuals of school-averaged scores, after subtracting predictions based on community income, tend to make the scores ineffective for rating performance of schools. Large uncertainties in year-to-year score changes tend to make the score changes ineffective for measuring performance trends. In their present state, considered as a means to rate the performance of public schools, tenth-grade MCAS mathematics tests mainly appear to provide a complex and expensive way to estimate community income.

Appendix 1: Education Reform in Massachusetts

Massachusetts has experienced many education experiments and reforms over the past few centuries. (Note 14) During the 1990s Massachusetts education reform was driven by the McDuffy school finance lawsuit (McDuffy, 1993), originally filed in 1978. In its McDuffy decision, the Massachusetts Supreme Judicial Court said that Massachusetts funding disparities harmed the quality of education for some students, denying them education to which they were constitutionally entitled. This June, 1993, decision was widely anticipated. The Massachusetts Education Reform Act of 1993 (Education Reform, 1993) was signed less than a week after the decision was released.

A group called the Massachusetts Business Alliance for Education, (Note 15) organized in 1988 and led by the late John C. (Jack) Rennie, then CEO of the former Pacer Infotec, Inc., of Burlington, MA, (now the AverStar division of Titan Corp., San Diego, CA), and S. Paul Reville, then director of the Worcester Public Education Fund, wrote the reform bill sponsored by the Education Committee of the legislature. In 1991 the Business Alliance produced a document entitled *Every Child a Winner*. (Note 16) A story from the May 2, 1993, Northwest edition of the *Boston Globe* quoted former Rep. Mark Roosevelt, then House Education Committee Chair, as saying that the House education reform bill then pending "is essentially [the Business Alliance document]." In a publication of MassINC, Rennie is quoted as saying, "We bought change" (Walser, 1997). Most of this work was carried out in secret. As late as December, 1992, then Lt. Gov. Cellucci was calling on the Education Committee chairs, Sen. Thomas Birmingham of Chelsea and Rep. Roosevelt of Beacon Hill, to disclose their bill (Howe, 1992). Almost all the controversy generated by this legislation focused on its funding formulas. Until 1993, the public had hardly any knowledge of its sweeping changes in school policy and regulation. The following newspaper report was printed December 23, 1992 (Overdue, 1992):

> "The bill also calls for higher student achievement and curriculum standards."

This was the most thorough description in mainstream news media from 1988 through 1992. The bill was released in an emergency legislative session of January 4-5, 1993, but it failed to pass.

Soon after the bill became public, education and public interest groups began to react. As reported in the *Boston Globe* on January 26, 1993, a coalition headed by Stephen Bing of the Massachusetts Advocacy Center predicted major problems with the legislation, including these (Ribadeneira, 1993):

- The reform bill will institutionalize unfair teaching practices such as using tests to track students into different ability levels.
- By substituting different certificates in place of the high school diploma, the bill will contribute to the dropout problem rather than ameliorate it.
- The legislation provides no mechanism for meaningful participation by parents or students in the development of a remedial education plan nor any opportunity to contest an inadequate plan.

Such objections were ignored. Neither the mainstream news media nor the Great and General Court gave these or other educationally oriented issues further attention in 1993.

Rep. Thomas Finneran of Mattapan, then chair of the House Ways and Means Committee, secretly inserted anti-abortion provisions in the bill, provoking a storm of protest (Howe, 1993a). Other House controversy centered on a salary cap for teachers, which was removed. Proposals for "school choice," charter schools and gambling revenues became the focus of activity in the Senate. The bill quickly became a hodge-podge of added provisions with no coordination. Many observers became skeptical about overall benefit. Geoffrey Beckwith of the Massachusetts Municipal Association was quoted as saying, "It certainly doesn't appear at this time that this bill will bring about any fundamental reform" (Howe, 1993b). In February, 1993, the Supreme Judicial Court heard testimony in the McDuffy case. In March, former Rep. Roosevelt began a (losing) campaign for Governor (Lehigh, 1993, Howe, 1993c). In April, the Edison Project, a business corporation, announced interest in privatizing Massachusetts schools (Nealon, 1993). By May, an impasse over "school choice" had developed, the then Senate President William Bulger of Boston demanding it and the then House Speaker Charles Flaherty of Cambridge rejecting it. At the time, the Business Alliance opposed the "school choice" and charter school amendments (Taylor, 1993). However, another business group calling itself "CEOs for Fundamental Change in Education" had appeared, dominated by banking and large business interests and supported by the Pioneer Institute. It was actively promoting charter schools and "school choice" through the Massachusetts Senate (Vennochi, 1993). After compromising with limits and delays on "school choice" and charter schools, the House passed the bill through second reading June 2 and the Senate passed it June 3. The Supreme Judicial Court released its McDuffy case decision June 15. Former Gov. William Weld signed the Education Reform Act on June 18, 1993.

In seven years under the Education Reform Act, state aid to Massachusetts public schools has grown from $1.3 billion to $3.0 billion per year, almost all the increase going to communities with low household incomes. For example, Holyoke, a low-income community, now receives over 90 percent of its school funding from the state, while Brookline, a high-income community, receives only about 10 percent (Mass. DoE, 2000e). In 1992, Holyoke spent less than 75 percent as much per student as Brookline, but now it spends about 95 percent of what Brookline does (School reform, 1992). Still, the Act has tended to provide more of a windfall for Holyoke's taxpayers than for its public school students.

Besides setting state commitments to equalize school funding, the Education Reform Act made many changes to Massachusetts education policy and regulations, including the following, as described by the Business Alliance (Taylor, 1993):

- New goals, standards and indicators of performance for schools, students and teachers
- Financial rewards to teachers and schools that excel
- Decentralized authority, limiting school committees to policy-making and oversight, making CEOs of superintendents, and giving hiring and firing power to principals
- Preschool for all 3- and 4-year-olds
- Expanded professional development for teachers

More than seven years later, some of these changes are only starting to be implemented.

Before 1996, the Massachusetts Board of Education regarded test scores as only one component of school accountability. In a 1993 policy advisory cited by Wheelock, 1999, the Board warned that an accountability system based primarily on test scores would be likely to produce harmful long-term consequences, including: exclusion of weaker students from the assessed pool of students; lowered morale among teachers and students; the loss of experienced educators from schools enrolling many disadvantaged students; distortion of instruction and curriculum to reflect test content and format; cheating and corruption of test scores.

Nevertheless the Board began development of testing programs to satisfy the provisions of the Education Reform Act, which eventually became MCAS. It appointed committees of educators and parents to help insure that tests were meaningful, fair and free from overt forms of bias (French, 1998). From 1993 through 1996, Massachusetts invested more than $2 million to support education reform study groups seeking ways to set high expectations for students (Antonucci, 1997a).

By March of 1996 the Department of Education had completed a Common Core of Learning (Mass. DoE, 1994), released six of seven planned curriculum frameworks based on it, and begun the development of MCAS based on the frameworks. In addition, it had announced plans (Mass. DoE, 1996a) to: award grants to school districts for assessment activities such as portfolio development; hold statewide conferences on local assessment strategies; publish examples of student work that meet the statewide standards so that districts have a model of what to strive for; develop a bank of assessment exercises linked to the curriculum frameworks for use by classroom teachers. All of these satisfy or support provisions of the Education Reform Act.

Development of MCAS took a sharp turn away from public participation (Mass. DoE, 1996b) after the appointment of John Silber as chair of the Massachusetts Board of Education in November, 1995 (Pawlack-Seaman, 1996). In August, 1996, Silber, former president of Boston University and an unsuccessful candidate for Governor, working with then Gov. Weld, engineered replacement of the 17-member Board of Education, including four African-Americans and Latinos, with a 9-member board, including several with ties to school privatization and charter schools, only one African-American and no Latinos (Jackson, 1996, Wong, 1996). At his first meeting with the Board, Silber said the Education Reform Act's underlying principle that all students are capable of learning at high levels was "rubbish" (Future, 1996). Responding to a demand for his resignation in 1997 he commented, "Some of the things that pass for learning disabilities used to be called stupidity" (Pawlack-Seaman, 1997). Soon after the Board replacement, the committees of educators and parents that had been formed to oversee curriculum frameworks, test development and other education reforms were disbanded (Antonucci, 1997b).

In December, 1996, Silber proposed a two-track system (Avenoso, 1996) with a general diploma awarded for passing the GED, a test introduced during World War II by Everett F. Lindquist, developer of the Iowa test series, and now administered by the American Council on Education. An honors diploma would be awarded for high scores on the Massachusetts test series. Silber was forced to abandon the plan in January, 1997, when his personally chosen Board of Education refused to support it (Leung, 1997). However, a legacy of Silber's proposal remains, the view that MCAS should be aimed at the exceptional student. In August, 1999, the Business Alliance revived the two-track concept (Still. 1999) with a proposal to award general diplomas to students who satisfy "essential requirements in English and math." The Business Alliance did not specify how this would be administered, and the Department of Education and Board of Education still oppose the concept. What they have done instead is to make a "competency determination" required by the Education Reform Act for a high-school diploma depend on achieving relatively low MCAS test scores, (Note 17) answering about 40 percent of the questions. (Note 18) A "certificate of mastery," as specified by the Act, is to be awarded for much higher scores, (Note 19) answering about 80 percent of the questions to achieve an "advanced" rating on one or more tests.

After the loss of two Education Commissioners in rapid succession (Battenfield and Pressley, 1999), Silber resigned during a struggle over a new Commissioner in March, 1999. The outcome of the controversy (Estrin, 1999) was replacement of Silber by James Peyser (see Peyser, 1996, and Peyser, 1998), head of the reactionary Pioneer Institute, tied to school voucher and privatization movements, and retention of the compliant acting Commissioner David Driscoll. Since the Silber era, MCAS development has been closely monitored by Board of Education member Abigail Thernstrom, a fellow of the Manhattan Institute, (Note 20) and hired consultant Sandra Stotsky (see Stotsky, 1999), a writer for the Fordham Foundation and now an Associate Commissioner of Education. Both of these right-wing foundations have supported forms of school privatization. Four rounds of MCAS tests have now been administered, in the spring of 1998, 1999, 2000 and 2001. The Board of Education has made the questions used in scoring available to the public, although they have not disclosed their standards for evaluating essay questions or all the details of their approach to computing scores. (Note 21) Students in religious-run and other private schools and students being taught at home are not required to take or pass MCAS tests. Bills have been filed but have not been enacted to include private schools in testing and to exclude charter schools. A system of "school accountability" has been defined by the Department of Education (Mass. DoE, 1999b). It is based entirely on MCAS scores, a violation of Education Reform Act requirements. (Note 22)

MCAS has been heavily promoted by a business-oriented group organized as Mass Insight Education and Research Institute, Inc., in Boston, founded in 1997 by registered Massachusetts lobbyist William H. Guenther, who is its president. (Note 23) Guenther is also involved with three other public relations organizations, Mass Insight Corp., in Cambridge, Opinion Dynamics Corp., in Cambridge, and New England Economic Project, in Walpole. Mass Insight Education and Research Institute is a non-profit corporation that coordinates several policy groups and has close relationships with business and education executives. Leaders of its "Campaign for Higher Standards" have included Gloria Larson, former Mass. Secretary of Economic Affairs, the late John C. Rennie, former Chairman of the Massachusetts Business Alliance for Education and Vice-Chairman of AverStar, Inc., and Cathy Minehan, President of the Federal Reserve Bank of Boston. Leaders of its "Coalition for Higher Standards" include James Caradonio, Superintendent of Worcester Public Schools, and Thomas Payzant, Superintendent of Boston Public Schools. Its board of directors has included Maura Banta, Manager for External Programs at IBM Corporation, John Rennie, Abigail Thernstrom, Senior Fellow at the Manhattan Institute and member of the Massachusetts Board of Education, and Bruce Tobey, Mayor of Gloucester. Financial supporters of Mass Insight Education and Research Institute include BankBoston (now FleetBoston Financial), State Street Corp., Bell Atlantic (now Verizon), Boston Edison (now an NSTAR division), Liberty Mutual Group, PricewaterhouseCoopers, Goodwin, Procter & Hoar, AverStar, Inc. (now a division of Titan Corp.), Gorton's Seafoods, Hewlett-Packard, IBM and Intel.

Mass Insight publications promoting MCAS have been distributed to public schools through the Massachusetts Board of Education, (Note 24) and Mass Insight has received public funds for its services. Mass Insight has been cited in minutes of the Board of Education as a source of policy initiatives, (Note 25) including a proposal to use a score of 220 on tenth-grade language arts and mathematics tests as the initial "competency determination" for high-school graduation, which was adopted by the Board in November, 1999. Mass Insight presents a simple but misleading picture of MCAS, saying that it measures "skills that students will need after graduation?at college or on the job" (Why, 1999). No such significance has ever been demonstrated for MCAS or other state accountability tests.

Massachusetts schools are often castigated by newspapers and politicians as mediocre, (Note 26) but actually they are superior. In the October, 1999, *Boston Magazine*, Jon Marcus wrote:

> "According to assessment tests and other measures, Massachusetts schools are among the nation's best. Students here rank fourth nationally in reading, sixth in math, and eighth in science on the National Assessment of Educational Progress, administered by the US Department of Education. They scored higher this spring in reading than 69 percent of their peers across the country on the Iowa Test of Basic Skills; a third of the state's third graders were at the advanced level, compared to 19 percent nationwide. A Boston College correlation of NAEP results with international tests found that in eighth-grade science Massachusetts students performed as well as, or better than, their counterparts in 40 out of 41 other countries, including Germany and Japan; only kids in Singapore were

> rated higher. More students study algebra and upper-level math and science than the national average, and Massachusetts also has the fifth-lowest high school dropout rate, the nation's highest percentage of graduates who enroll in college, and the third-highest proportion of students who take the SAT. Massachusetts students' SAT results have risen steadily since 1994; last year, they were the highest in a decade." (From Marcus, 1999.)

Such a contrast between political bombast and educational reality has become common. Part of the long record of declining SAT scores in the 1960s and 1970s, for example, had a straightforward cause, the rapidly expanding number of students taking the tests, including many low-income students and students with lower grades who would not have taken them in prior years (Koretz, 1992, Berliner and Biddle, 1995, Berliner and Biddle, 1996). When education researchers looked at comparable groups of students, SAT scores were gradually rising during much of this period; unadjusted averages began to rise as the growth in the number of test takers slowed. With the gratuitous abuse regularly heaped on public schools during this time, few members of the public would have guessed that some of the real trends in scores were positive. Even now, many politicians and most news media find the actual results inconvenient; they prefer simple, strident bashing of public schools, uncomplicated by facts.

Many observers and columnists have commented on the complex language, mental tricks and obscure bits of knowledge found in MCAS questions (see, for example, Vaishnav, 2000, and Kohn, 2000). How elitist are the MCAS tests? One way to look at this is to ask the fraction of questions that must be answered to pass them and the fraction of students who cannot do this. Table A1-1 compares the current graduation level tests in Massachusetts (Note 27) (10th grade MCAS) with those in New York (Note 28) (the revised Regents series) and Texas (Note 29) (the TAAS series).

Table A1-1
Comparison of State Achievement Tests

State	Typical percent of questions to pass	Typical percent of students failing (Note 30)
Texas	**70**	**20**
New York	**55**	**20**
Massachusetts	**40**	**50**

Source of data: see text, Appendix 1

Massachusetts, with by far the lowest passing score, has by far the highest rate of failure. Yet year after year, nationwide measures of academic performance rate Massachusetts students well ahead of those in New York and Texas. (Note 31) Passing an MCAS test says little about the education imparted through many years of schooling. On an MCAS tenth-grade mathematics test, the difference between passing and failing can be getting 24 questions right rather than 23 (see Mass. DoE, 1999d, and Mass. DoE, 1999c).

A recent study performed by Catherine Horn and others at Boston College (Horn, et al., 2000) showed that a barely passing score on the tenth-grade MCAS math test was approximately equivalent to the 50th percentile score for the PSAT math test. Students taking the PSAT are aiming for college. Many are taking the test as part of applying for National Merit and other scholarships; they tend to be good students. Therefore it should not be surprising when half or more of the general student population may "fail" the current tenth-grade MCAS math test.

A large share of MCAS test questions is aimed at students with exceptional skills and knowledge rather than at typical students. If Massachusetts designed tests to measure competence rather than mastery, it would be setting much higher passing percentages. If Massachusetts genuinely cared about assessing student skills and knowledge, it would satisfy Education Reform Act requirements (Note 32) calling for a "variety of assessment instruments," including "consideration of work samples, projects and portfolios," facilitating "authentic and direct gauges of student performance," and it would provide for circumstances of special education students, students entering the public schools from households that speak a first language other than standard English, (Note 33) and students whose immediate aims focus on employment rather than higher education.

The Massachusetts Board of Education has ample access to information of this sort and has received many recommendations to improve its practices and make its system of assessments more realistic and fair. It has had more than $25 million to spend on developing MCAS (Szechenyi, 1998). It is also well aware that "high-stakes" testing systems in other states have sharply narrowed the school curriculum (Note 34) and increased the population of school dropouts, (Note 35) who are likely to be eligible only for the "McJobs" of the future. So far, however, members of the Massachusetts Board of Education remain rigid, programmatic and hostile to facts that do not support their policies. Their attitude does not originate from lack of information or resources.

MCAS, like the other "achievement tests" used in state accountability systems, has never been shown to predict success in adult life to any greater degree than could be done with a knowledge of student backgrounds. Instead of trying to show practical significance the Board assumes it, in proposing to use this test as the sole state criterion to deny high-school diplomas and state college eligibility to low-scoring students, making it difficult for them to find responsible jobs and other forms of advancement. Students from households that already have the least suffer the most from such a system, tending to widen an economic gap between haves and have-nots in our society, already among the greatest of the industrial nations.

Appendix 2: Massachusetts Vocational Schools

Massachusetts municipal school districts support either jointly or individually more than 30 "vocational," "vocational-technical," "technical," "agricultural-technical" and "agricultural" high schools, (Note 36) most of which the Department of Education recognizes as separate school districts. Table A2-1 includes the 29 vocational schools that are now operated as separate school districts plus the "technical" high school operated by the City of Boston. (Note 37)

Table A2-1
1999 MCAS Grade 10 Math Test Scores for Vocational Schools

Vocational School	**1999 MCAS math 10**	
	Average	**Number**
Assabet Valley Voc. High	211	186
Bay Path Reg. Voc. Tech.	210	245
Blackstone Valley School	213	209
Blue Hills Reg. Voc. Tech.	213	215
Bristol County Agr. High	212	100
Bristol Plymouth Voc. Tech.	208	207
Cape Cod Reg. Voc. Tech. High	214	171
Charles McCann Voc. Tech.	217	105
Diman Reg. Voc. Tech. High	208	312
Essex Agr. & Tech. Inst.	212	80
Franklin County Tech.	214	115
Gr. Lowell Reg. Voc. Tech.	205	466
Gr. New Bedford Voc. Tech.	208	497
Greater Lawrence Tech.	205	320
Joseph Keefe Tech. High	208	160
Madison Park Tech. High	202	289
Minute Man Voc. Tech. High	216	199
Montachusett Voc. Tech.	210	257
Nashoba Valley Tech. High	208	121
Norfolk County Agr.	214	115
North Shore Tech. High	210	118
Northeast Metro. Reg. Voc.	206	297
Old Colony Reg. Voc. Tech.	210	127
Pathfinder Voc. Tech.	210	134
Shawsheen Valley Voc. Tech.	209	281
So. Shore Voc. Tech. High	212	130
Southeastern Reg. Voc. Tech.	209	302
Tri County Reg. Voc. Tech.	212	215
Upper Cape Cod Tech.	206	134
Whittier Reg. Voc.	204	352
Averages	210	215

Source of data: Mass. DoE, 2000h

Vocational schools typically provide instruction for grades 9 through 12 and devote about half their instructional time to traditional academics and about half to vocational training. Some communities, including Cambridge, Quincy, Revere and Waltham, provide vocational education in the same facilities as academic programs. In contrast to academic high school programs, which mainly concern themselves with preparing students for college, vocational programs train students for specific occupations, and their faculty tend to rate themselves according to graduates' success in finding satisfactory employment in those occupations.

Vocational schools, represented through the Massachusetts Association of Vocational School Administrators, have presented the Massachusetts legislature with a bill to decouple those schools from MCAS and substitute a special examination system based on the occupational categories for which they provide training, sponsored by Sen. David Magnani of Framingham (Magnani, 2000). They are well aware, as the foregoing table shows, that their students score far below state averages on MCAS tests; but they claim that MCAS tests are directed toward a curriculum that they do not teach and cannot teach without weakening their key programs. Table A2-2 identifies some of the major sources of information for Massachusetts vocational schools available on the Internet.

Table A2-2
Massachusetts Vocational School Information Sources

Massachusetts Association of Vocational School Administrators
Bay Path Regional Vocational Technical High School, Charlton, MA
Blackstone Valley Regional Vocational Technical High School, Upton, MA
Bristol-Plymouth Regional Technical School District, Taunton, MA
Bluehills Regional Technical High School, Canton, MA
Diman Regional Vocational Technical High School, Fall River, MA
Greater Lowell Technical High School, Tyngsboro, MA
Greater New Bedford Regional Vocational Technical High School, New Bedford, MA
Lower Pioneer Valley Educational Collaborative, East Longmeadow, MA
Minuteman Science-Technology High School, Lexington, MA
Northeast Metropolitan Regional Vocational School, Wakefield, MA
Old Colony Regional Vocational Technical High School, Rochester, MA
Shawsheen Valley Technical High School, Billerica, MA
Tri-County Regional Vocational Technical School District, Franklin, MA
William J. Dean Technical High School, Holyoke, MA
Whittier Regional Vocational Technical High School, Haverhill, MA
Worcester Vocational High School, Worcester, MA
Population trends at Massachusetts Regional Vocational School Districts

Source of data: Massachusetts Association of Vocational School Administrators

Appendix 3: Metropolitan Boston MCAS Mathematics Scores

Table A3-1
1999 MCAS Grade 10 Math Test Scores for Boston-area Schools

		2000		1999		1998	
City or Town	**High School**	**Adj Avg**	**Adj Num**	**Adj Avg**	**Adj Num**	**Adj Avg**	**Adj Num**
Arlington	Arlington	239	231	234	246	230	251
Belmont	Belmont	247	254	243	229	245	223
Boston	Boston High	210	111	204	132	203	168
Boston	Brighton	208	233	205	216	203	186

Boston	Charlestown	210	175	206	148	207	156
Boston	Dorchester	205	134	204	121	206	128
Boston	East Boston	210	270	205	206	204	225
Boston	Hyde Park	204	129	203	99	203	249
Boston	Jeremiah Burke	211	112	208	145	204	85
Boston	South Boston	210	177	205	159	205	182
Boston	The English High	208	200	204	203	203	230
Boston	West Roxbury	210	211	205	269	202	149
Boston Exam	Boston Latin	262	382	254	399	246	417
Boston Exam	Latin Academy	252	248	233	245	230	222
Boston Exam	O'Bryant Science	235	222	227	258	223	248
Braintree	Braintree	241	319	228	306	229	324
[illegible]ookline	Brookline	245	429	240	416	238	406
Cambridge	Rindge & Latin*	219	331	220	423	222	404
Chelsea	Chelsea	219	203	216	207	215	242
Dedham	Dedham	238	180	227	174	226	172
Everett	Everett*	218	325	221	295	216	277
Lexington	Lexington	243	407	238	368	239	362
Lynn	Classical	223	294	216	281	216	246
Lynn	English	224	285	213	247	212	257
Malden	Malden	225	305	221	286	219	265
Marblehead	Marblehead	241	169	232	145	237	187
Medford	Medford*	228	228	221	231	219	232
Melrose	Melrose	228	214	226	245	225	243
Milton	Milton	232	241	228	208	229	204
Newton	North*	248	521	239	468	242	468
Newton	South	252	309	242	285	240	282
Peabody	Veterans*	226	426	220	354	219	372
Quincy	North Quincy	234	301	227	303	224	294
Quincy	Quincy*	220	238	212	200	214	279
Revere	Revere*	224	251	218	306	216	286
Salem	Salem*	224	234	220	243	219	257
Saugus	Saugus	233	193	226	226	222	232
Somerville	Somerville*	218	328	216	338	217	307
Stoneham	Stoneham	235	171	227	169	233	171
Swampscott	Swampscott	239	195	240	161	224	181
Wakefield	Memorial	231	192	227	228	230	243
Waltham	Waltham*	228	344	220	339	221	384

Watertown	Watertown	233	164	231	159	221	156
Weymouth	Weymouth*	227	466	222	455	222	433
Winchester	Winchester	249	225	243	198	244	178
Winthrop	Winthrop*	227	120	223	118	218	162
Woburn	Woburn	237	276	226	285	226	240

Source of data: see text, Appendix 3

Schools marked with asterisks (*) in Table A3-1 are those providing vocational education in the same facility as academic programs.

Data in Table A3-1 are tenth-grade MCAS mathematics test scores for 1998-2000, averaged by schools, and numbers of test participants per school, obtained from the Massachusetts Department of Education (Mass. DoE, 2000h) and adjusted for percentages of students enrolled in schools but not taking the test. Adjustment formulas are as follows:

$$\mathbf{N}_{adj} = \mathbf{N}(1 - \mathbf{P}_a/100)$$

$$\mathbf{S}_{adj} = (100\mathbf{S} - 200\mathbf{P}_a)/(100 - \mathbf{P}_a),$$

where

N is the number of enrolled students

S is the average score on test, per Department of Education

$\mathbf{P}_a$ is the percentage of "absent" students (not taking test)

$\mathbf{N}_{adj}$ is the adjusted number of students (number taking test)

$\mathbf{S}_{adj}$ is the adjusted average score (only students taking test)

This procedure cannot adjust correctly for students absent for some but not all test sections. The Department has not published such information for the years 1998-2000. Adjusted results are rounded to the nearest integer.

Appendix 4: Metropolitan Boston School Characteristics

Table A4-1
Data for Boston-area School Characteristics

City or Town	High School	Pop./ Grade	% African Amer.	% Asian or Pac. Isl.	% Hispanic/ Latino	% Lim. Eng. Pr.	% Free Lunch	9,10-11,12 Reduct.	Per Cap. Income
Arlington	Arlington	259	6.7	4.3	2.7	0.7	8.1	0.2	21.4
Belmont	Belmont	241	2.8	5.6	0.2	0.4	2.5	10.4	26.8
Boston	Boston High	183	56.5	3.3	26.5	14.4	64.3	4.0	15.6
Boston	Brighton	267	49.5	7.9	35.1	32.0	62.1	29.4	15.6
Boston	Charlestown	288	36.1	22.5	27.3	36.9	59.9	14.3	15.6
Boston	Dorchester	249	66.7	2.7	25.7	29.7	51.4	26.2	15.6
Boston	East Boston	317	24.0	6.7	40.3	29.8	62.9	47.0	15.6
Boston	Hyde Park	220	72.0	1.6	18.4	23.5	53.6	15.7	15.6
Boston	Jeremiah Burke	176	86.0	3.6	26.1	32.9	56.7	20.0	15.6
Boston	South Boston	267	46.7	18.4	16.6	26.1	44.6	24.3	15.6
Boston	The English High	332	50.1	1.9	36.9	45.5	62.0	24.2	15.6
Boston	West Roxbury	328	64.7	2.4	21.1	28.7	64.3	18.8	15.6
Boston Exam	Boston Latin	398	18.5	22.7	8.4	0.6	29.3	16.2	15.6
Boston Exam	Latin Academy	255	27.7	20.2	7.7	2.8	40.0	28.3	15.6
Boston Exam	O'Bryant Science	252	45.1	31.8	13.4	18.3	48.7	23.0	15.6
Braintree	Braintree	337	3.6	3.0	1.0	0.4	4.2	12.0	18.6
Brookline	Brookline	428	12.5	13.7	3.9	2.6	15.2	8.7	29.0
Cambridge	Rindge & Latin*	478	37.4	7.6	14.2	7.7	14.8	7.7	19.9
Chelsea	Chelsea	281	8.5	10.9	63.7	15.1	57.8	39.1	11.6
Dedham	Dedham	179	1.6	2.2	4.1	1.7	3.2	22.6	19.0
Everett	Everett*	336	8.4	3.6	11.2	5.2	23.0	21.1	14.2
Lexington	Lexington	386	7.3	15.0	0.6	1.1	3.9	12.3	30.7
Lynn	Classical	282	17.5	24.0	14.2	14.6	38.8	26.5	13.0
Lynn	English	327	11.3	14.2	23.0	20.1	23.2	20.5	13.0
Malden	Malden	346	13.0	21.0	6.8	10.5	17.6	15.6	15.8
Marblehead	Marblehead	178	3.9	0.7	0.6	1.1	3.5	-3.7	30.6
Medford	Medford*	266	11.2	3.9	1.3	2.9	6.0	-1.7	16.9
Melrose	Melrose	242	4.2	1.3	1.2	0.7	5.4	-2.9	20.2
Milton	Milton	232	15.7	2.2	1.3	0.8	4.2	7.9	22.4
Newton	North*	495	5.9	7.8	1.7	2.4	3.0	8.4	28.8
Newton	South	300	3.8	11.1	1.0	1.9	1.6	8.2	28.8
Peabody	Veterans*	418	0.8	1.2	7.5	2.0	8.4	20.0	17.0
Quincy	North	325	0.6	26.5	1.2	0.0	14.4	19.5	17.4

	Quincy								
Quincy	Quincy*	282	4.7	14.1	3.6	9.0	15.7	4.7	17.4
Revere	Revere*	339	3.6	15.4	7.9	4.6	21.6	26.4	14.7
Salem	Salem*	279	5.1	2.2	20.0	6.8	26.3	31.4	16.2
Saugus	Saugus	221	0.7	1.9	0.7	0.0	7.9	17.2	17.8
Somerville	Somerville*	467	17.1	5.9	14.3	15.4	52.8	24.6	15.2
Stoneham	Stoneham	191	0.5	1.4	1.2	0.0	7.2	3.3	18.2
Swampscott	Swampscott	184	1.5	0.3	1.6	1.4	2.8	4.0	25.6
Wakefield	Memorial	240	1.9	1.5	0.4	0.1	5.8	5.7	19.0
Waltham	Waltham*	381	9.0	7.1	15.1	3.4	15.9	-2.5	16.8
Watertown	Watertown	184	3.7	3.4	4.2	3.1	14.2	6.1	20.4
Weymouth	Weymouth*	464	2.1	1.8	1.0	0.1	6.3	16.8	18.4
Winchester	Winchester	209	1.6	4.0	0.5	0.0	2.3	16.9	30.6
Winthrop	Winthrop*	140	2.3	2.1	2.7	1.6	4.1	-12.9	17.9
Woburn	Woburn	284	2.0	2.1	3.3	1.6	7.7	18.7	18.2

Source of data: see text, Appendix 4

Data in Table A4-1, except per-capita income, are gathered from the reports of public schools to the Massachusetts Department of Education for the school year ended June 30, 1999, and published by the Department in its school profiles (Mass. DoE, 2000f). Data for per-capita community income in $1,000s are from the Massachusetts Department of Revenue (Mass. DoR, 1999), based on the 1990 US Census of Population and Housing. Schools marked with asterisks (*) are those providing vocational education in the same facility as academic programs. All numbers except average student population per grade and per-capita income are percents. Grade size reduction has been calculated as percent decrease in the grades 11+12 school population as compared with grades 9+10. School district reports (Mass DoE, 1999a) include the following: (Note 38)

Foundation Enrollment and Student Attendance Reports, reporting foundation enrollment and student attendance as of October 1, submitted to the Department by each district no later than December 15 during each school year.

Individual School Reports and School System Summary Reports, reporting on student enrollments and classifications as of October 1, including gender, "racial" or "ethnic," limited English proficiency and low-income status, submitted to the Department by each district no later than January 31 during each school year.

School Attending Children Report, counting all school-age residents of a district classified by grade and type of school attended, as of January 1, submitted to the Department by each district no later than April 30 during each school year.

Year-End School Indicator Reports, submitted to the Department by each district no later than the August 15 following each school year.

End-of-Year Pupil and Financial Reports (EOYR), submitted to the Department by each district no later than the September 30 following each school year. An EOYR currently consists of the following schedules:

1. Revenue and Expenditure Summary
2. Assessments Received From Member Towns or Cities or Regional School Districts
3. Instructional Services By Grade Level

4. Special Education Expenditures by Prototype
7. Pupil Transportation Reimbursement
8. Professional Development
11. Pupil Membership Summary
13. Staff Data By Major Program Area Instructional Programs
16. Pupils-Attendance Data
19. Annual School Budget

As of July 1, 2000, the Department requires school districts to compile data on instructional costs at the school building level. New financial reporting will use a revised and uniform chart of accounts in the EOYR due September 30, 2002. However, as previously noted, current school profiles do not include expenditures for schools. The Department has a long cycle for publication of data. Final summary data on per-pupil expenditures for the school year ending June 30, 1999, were released January 20, 2001.

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Notes

[1] The terms "racial" and "ethnic" will be used here in the senses of state and federal regulations, although they describe populations not always closely related by genetic or cultural backgrounds.

[2] For the fall of 1997, 85 percent of Massachusetts elementary and secondary school students were in public schools and 15 percent in private schools of all types. See National Center, 2001, Tables 39 and 64.

[3] On the motion of Chairman John Silber, Mass. DoE, 1998a.

[4] Massachusetts General Laws, Chapter 69 (Powers), Sections 1B and 1D. The Department of Education publishes "curriculum frameworks" with only the legal status of guidelines and recommendations. See Mass. DoE, 2000j.

[5] Massachusetts General Laws, Chapter 69 (Powers), Section 1D, paragraph (i).

[6] See Mass. DoE, 2000i, Chapter 12, for procedures to equate scores across test series. This document does not describe any procedures for relating test scores to education content as delivered in Massachusetts public schools.

[7] Model and MANOVA evaluations performed with *Statistica*, Version 5.5, StatSoft, Tulsa, OK.

[8] Compare "promoting power" or "holding power" in Balfanz and Legters, 2001. For issues concerning availability of accurate data on public school dropout rates, see Kaufman, 2001.

[9] Other school characteristics also deserve consideration. Boston may have enrollment patterns for high-school mathematics classes differing from suburban norms. Ninth-grade students classified as "Asian" have been found more than twice as likely as average students to be enrolled in traditional "high school mathematics" courses, while students classified as "Hispanic" were found less likely than average to be taking such courses. (Anne Wheelock, personal communication, January, 2001).

[10] It is possible that "limited English proficiency" acts as a proxy for other, potentially stronger factors, much as certain "racial" or "ethnic" percentages appear to act as proxies for income factors in these data.

[11] Other studies have reported significant "racial" or "ethnic" test score differences for individuals after adjusting for incomes. For one survey and an evaluation, see Hedges and Nowell, 1998, pp. 149-181. However, few studies have considered school ratings based on scholastic achievement tests given in the mid-teen years and have used commensurate data for a geographical cluster of communities that were each fairly homogeneous.

[12] See Mass. DoE, 1999b. For the first published ratings, see Mass. DoE, 2001. For potential penalties, see Mass. DoE, 2000b.

[13] See "Relationships between student MCAS performance and courses taken," in Brian Gong, *Relationships Between Student Performance on the MCAS and Other Tests--Collaborating District A,* National Center for the Improvement of Educational Assessment, Inc., March, 1999, pp. 39-48, available at http://www.nciea.org/uploadCFA /MA%20report.pdf.

[14] See Cremin, 1970, Kaestle, 1983, Tyack, 1974, and Tyack and Cuban, 1995.

[15] Referred to herein as the "Business Alliance." Not to be confused with the Massachusetts Global Business Alliance, Business Education Alliance, Regional Education and Business Alliance, or any of several other organizations with similar names.

[16] See Mass. Business, 1991. Principal author of the sections dealing with school finance was economist Edward Moskovitch, a former Massachusetts chief budget director and executive director of the Massachusetts Municipal Association. The title of this document should not be confused with the Every Child a Winner (ECAW) school programs and educational games produced by Martha F. Owens and Susan B. Rockett, beginning in 1974, and now distributed by Educational Excellence, Inc., of Ocilla, GA; there appears to be no connection; see http://www.ed.gov/pubs/EPTW/ep tw9/eptw9b.html.

[17] "Students in the graduating class of 2003 shall meet or exceed the...score of 220 on both the English Language Arts and the Mathematics MCAS grade 10 tests...." See Mass. DoE, 1999f.

[18] See Mass. DoE, 1999c, Chapter 8, Scoring, and Chapter 10, Scaling.

[19] Mass. DoE, 2000a. Also see Mass DoE, 1998c, and Mass. DoE, 1999c.

[20] See Antonucci, 1995, for the following: "As students are better matched to their institutions," [says Abigail Thernstrom], "as they cascade to places where they are prepared to the average level, the graduation rates should go up for minorities."

[21] For most of the available information, see Mass DoE, 1999c.

[22] Massachusetts General Laws, Chapter 69 (Powers), Section 1I (second paragraph). Also see Allen, 1999.

[23] Information on Mass Insight is available at http://www.massinsight.com/meri/index. html.

[24] For example, a "Starting Now" brochure for parents. See Driscoll, 1998a, and Driscoll, 1999b. The versions distributed include: Fall 1998, Spring 1999, Manufacturing and Processing Industry Spotlight, Fall 1999, Spring 2000, Fall 2000 and Spring 2001--all available from the Massachusetts Department of Education at http://www.doe.mass.edu/mcas/p ubs/other_pub.html.

[25] See the following examples: "Recent survey by Mass Insight," cited in *Goals 2000 Five Year Master Plan,* Goal 5, "Create a statewide infrastructure," March, 1995; "Mass Insight report on education reform," minutes of March 22, 1996; presentations on the graduation requirement by Bill Guenther, Mass Insight Education and by Susan Kiernan and John Lozada, Mass Insight's Campaign for Higher Standards, minutes of November 23, 1999.

[26] "A majority of parents surveyed said they would rather pay out of their pockets to send their children to private or parochial schools than send them to Haverhill schools" (quoted in Grodsky, 1999). "Almost every school system is loaded with incompetent administrators" (John Silber, quoted in Drew and Suhler, 1998). "We should change the teacher tenure law so we can dismiss incompetent teachers" (Lamar Alexander, former Governor of Tennessee and US Secretary of Education, quoted in Patch and Wallace-Wells, 1998). "The dismissal of incompetent teachers is made almost impossible in some communities by such over-zealous delirium on the part of good people" (from Samuel P. Orth, the author of *A History of Cleveland*, in Orth, 1909).

[27] For passing scores, see Mass. DoE, 1999f, and Mass. DoE, 1999c, Chapter 8, Scoring, and Chapter 10, Scaling. For typical scores from 1998 and 1999, statewide, see, Mass. 1999e, Executive Summary.

[28] For passing scores, see NY DoE, 2000a. For typical scores from 1999, see NY DoE, 2000b.

[29] For passing scores, see TX DoE, 2000a. For typical scores from 2000, see TX DoE, 2000b.

[30] In some formats, New York and Texas report lower failure percentages because they exclude some students or they include students who pass after multiple attempts.

[31] See, for example, National Assessment, 1998, and similar summary tables from other years.

[32] Massachusetts General Laws, Chapter 69 (Powers), Section 1I (second paragraph).

[33] See Madaus and Clarke, 1998.

[34] See McNeil, 2000, and Heubert and Hauser, 1999.

[35] See Clarke, et al., 2000, and Haney, 2000.

[36] As required by Massachusetts General Laws, Chapter 74 (Vocational Education), Section 7, and Mass. DoE, 1997.

[37] Data from Mass. DoE, 2000h.

[38] Also see *EdTech,* Massachusetts Department of Education, at http://www.doe.mass.edu/edtech.

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Public versus Private Education in Hawaii and Its Role in the State's Economy

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Abstract
This study presents a time-series evidence on the timing and degree of feedback relationship between participation in education and income growth in Hawaii. Using the unrestricted vector autoregression approach and two related measures of linear dependence and feedback, the results suggest that across all educational levels, i.e., K-12 and tertiary, participation in public education could be a good predictor of income growth in Hawaii. However, decomposing the feedback effect by frequency suggests that the dominance of public education over private education in explaining the variation in income growth to be concentrated mainly on the short-run to medium-run for tertiary level and long-run to permanent effect for K-12 level. Hawaii state legislature and educators should perhaps take these results as a motivation not to ignore the

problems plaguing Hawaii's public schools but should work towards greater improvement and support for public education given its predicted significant overall contribution to the Hawaiian economy.

Introduction

The lackluster condition of the Hawaiian economy when compared with the economic expansion in the mainland state economies since late 1991 led the Hawaiian legislature to reassess the economy's traditional sole dependence on the tourism industry. To help revive the economy, the state government focused on educational reform as one of their priorities. Hawaii needs to build its human capital stock to be an active player in the new information or knowledge-based global economy. To help ensure the availability of educated and skilled human resources, the presence of dynamic research and teaching institutions is eminent. However, despite the pronounced good intentions and plans made by the state government, a growing number of Hawaii residents realize that not enough is being done. Based on a statewide survey, residents are generally disappointed about the economy and the condition of education. In fact, with the dreary statewide economic performance comes difficult choices and the need for re-allocation of resources. So, where does public and private education stand in all this?

In this study, an empirical investigation is done to assess and compare the relative contribution of public and private schools to Hawaii's economy. This paper presents a time-series evidence on the timing and degree of feedback relationship between participation in education and income growth in Hawaii. The empirical investigation uses two feedback methods to measure the degree of dependence or the extent of feedback between data series and a related measure to distinguish between short-run and long-run effects of a given innovation or shock. This study is intended to contribute to a better understanding of the condition and quality of the educational system in Hawaii. Also, the findings of this study may have important implications for directing resources or investment in education and shaping of Hawaii's educational policy in the future.

Education in Hawaii: An Overview

The establishment of early schools in Hawaii was due to the efforts of missionaries in the 1840s. Public education was first instituted on October 15, 1840 with mandatory attendance of children from ages four to fourteen. The upkeep of earlier statistics on education in Hawaii was difficult because of numerous changes on its classifications. For instance, the compulsory age for school attendance went through six changes: ages four to fourteen in 1840, six to sixteen in 1859, six to fifteen in 1865, six to fourteen in 1923, six to sixteen in 1937 and finally six to eighteen in 1965. Secondary education during the early monarchy years in Hawaii was also limited and left largely to government-subsidized private schools while, higher education was developed only in the twentieth century.

Hawaii became the 50th state on Aug 21, 1959. In 1960, 46% of the population had four years or more of high school training while only 9% had four years or more of college training. As of 1998, 84% of the population are high school graduates while 24% have bachelor's or advanced degree.

Overview of School Enrollment and Educational Resources

As summarized in Table 1, the participation in Hawaii's formal public education at the level of kindergarten to grade 12 had its biggest growth increase in the 1960s; while private schools had its biggest increase in enrollment in the following decade. Enrollment in K-12 exhibited contrasting trend for public and private schools, i.e., when public institutions experienced positive growth, the private institutions suffered a negative growth and vice versa.

Table 1
Average Growth Rate in K-12 and Tertiary Enrollment, Number of Schools and Teachers

	1960-69	1970-79	1980-89	1990-99
Public K-12 Institutions				
Enrollment	2.42	-0.58	0.095	0.91
Schools	0.44	0.59	0.389	0.669*
Teachers	4.49	1.05	1.34	2.051*
Private K-12 Institutions				
Enrollment	1.12	1.32	-0.403	0.18
Schools	2.63	1.38	-0.25	-1.064**
Teachers	3.36	3.03	2.62	0.177**
Tertiary Enrollment				
Public	10.37	1.31	-1.13	-0.455
Private	9.43	9.65	5.59	2.60

Note: Figures indicated with * refer only to 1990-97 while those with ** refer only to 1990-96.

For some years, the number of K-12 schools established does not seem to follow the enrollment trend. In particular, the number of public schools in the island posted an increase of 0.6% in the 1970s at a time when it experienced a comparable 0.6% decline in enrollment. Conversely, at a time of recovery in enrollment, the number of public schools established continued to decline. The number of private schools recorded big increases during the 1960s and 1970s but was drastically reversed in the 1980s and 1990s. In terms of school resources, both public and private schools had their biggest growth increase in hiring teachers during the 1960s. However, in terms of average number of pupil per teacher, private schools do a better job than public schools in providing small classes due in part to private schools continued bigger increases in hiring teachers. The public school system also continue to be plagued by other problems or concerns such as low test scores, aging facilities and low teacher morale.

For tertiary level, private universities exhibited continuous positive growth in enrollment from 1960 to 1999. In contrast, the public university suffered a drastic drop in enrollment in the 1970s relative to the previous decade, and turned into a negative growth in the 1980s and 1990s. This downward trend in enrollment may not seem surprising given that the state funding for the public university system dropped 19% in the past ten years. In fact, a national survey spotlighted Hawaii as the state with the largest loss in state support for higher education in 1998-99. Budget cuts have forced some programs to close or cease operation. A state law that sets a $352 million floor in state funding for the University of Hawaii (UH) was amended by the legislature wherein they are now to provide only for an appropriation ranging from 60-80% of funds required in addition to tuition. Beginning in 1995-1996, UH was allowed to keep tuition fees which formerly go into state general fund. Despite this change, the state university system still finds their resources constrained that they have to resort to increasing tuition fees which took a toll in their enrollment.

Data and Description of Methodology

Data on school enrollment and per capita Gross State Product were taken from The State of Hawaii Data Book, various issues, Dept. of Planning and Economic Development. Earliest available data for private universities were recorded in 1955 and were taken from various sources such as Historical Statistics of Hawaii by Robert Schmitt (1977) and Hawaii State Department of Education records. Private universities in Hawaii primarily consists of Bringham Young University of Honolulu, Chaminade University and Hawaii Pacific University. In this study, data on public university account only for enrollment at the University of Hawaii at Manoa which is the biggest institution in the state university system. Data on the number of K-12 schools and teachers for both public and private institutions were taken from the Hawaii State Department of Education records. Given the availability of relevant data, this study covers the period of 1958 to 1999.

Given that a number of models are consistent with observed correlation between human capital and income growth, I used the unrestricted vector autoregression (VAR) approach to model the dynamic relationship among pertinent variables in order to minimize specification error. The VAR approach avoids the need for tight structural modeling by treating variables in a system as a function of all lagged values of all of the endogenous variables in the system (Hamilton, 1994). It uses only past regularities and historical patterns in the data as a basis for forecasting. In this study, a three-variable autoregressive system is used. The variables include income growth as proxied by the growth rate of real gross state product per capita, enrollment figures at different levels, i.e., K to 12 and higher education from both public and private schools to serve as proxies for human capital stock. A lag length of four years is used for all variables as suggested by the likelihood ratio test done. Also, based on the unit root tests conducted (Dickey, D. & Fuller, 1979; Kwiatkowski, D., Phillips, Schmidt & Shin, 1992; Phillips & Perron, 1988), the stationarity of some data series are inconclusive. Hence, the empirical investigation uses the data series in both levels and first differences or in percentage change.

The details of the two related measures of linear dependence and feedback used in this study can be found in the Appendix. To measure the degree of dependence or the extent of various kinds of feedback between income growth and participation in education as measured by school enrollment, I used Geweke's (1982) bi-variate feedback method. The feedback measures are non-negative and zero only when feedback or causality of the relevant type is not present. A simple transformation of each feedback measure gives the reduction in the prediction error variance. Also, to distinguish between short-run and long-run effects of a given shock, I decomposed the feedback by frequency using McGarvey's (1985) methodology. I used this method on an expanded three-variable VAR system.

Empirical Results and Data Analysis

The bi-variate feedback results using Geweke's method are shown in Table 2. The results suggest that both in terms of levels and first differences, the magnitude of linear feedback from participation in K-12 private education to income growth to be about five times greater than the feedback from public enrollment to income growth. However, in terms of higher education, the magnitude of feedback from the public university is bigger than the feedback from participation in private universities. Also, at all educational levels (i.e., K-12 and tertiary), the feedback from public education to income growth remains bigger than the feedback from private education. This result may suggest that in Hawaii, participation in public education could be a good predictor of income growth.

Table 2
Feedback from Participation in Education to Income Growth

K to 12	In levels	In Percentage Change
Public	0.0852 (8.17%)	0.0994 (9.46%)
Private	0.4997 (39.33%)	0.5033 (39.55%)
Higher Education		
Public	0.2477 (21.94%)	0.0743 (7.16%)
Private	0.0496 (4.84%)	0.0459 (4.49%)
All educational Levels		
Public	0.1683 (15.49%)	0.0832 (7.98%)
Private	0.0788 (7.57%)	0.0782 (7.52%)

In order to have a better idea of an innovation's short-run versus long-run effects, the feedback measure is decomposed by frequency bands. Also, the bi-variate system is extended to a three-variable system and uses the ordering of 'growth prior to public education prior to private education' in the Choleski decomposition. Although the feedback measure is consistent, McGarvey showed that, in small samples, the feedback measure is biased upward. Hence, the Monte Carlo simulation method is used to derive bias-adjusted feedback estimates. Table 3 summarizes the adjusted estimates and figures enclosed in parentheses pertain to the proportion of variance explained by a corresponding shock to a series.

Table 3
Feedback from Participation in Education to Growth by Frequency Levels

In levels	**Private K-12**	**Public K-12**
Permanent	0.0002 (0.02%)	0.0015 (0.15%)
Long-run	0.024 (2.36%)	0.132 (12.40%)
Medium-run	0.174 (15.97%)	0.056 (5.49%)
Short-run	0.832 (56.48%)	0.043 (4.24%)
Overall	0.271 (23.74%)	0.061 (5.90%)
In Percentage Change	**Private K-12**	**Public K-12**
Permanent	0.222 (19.91%)	1.124 (67.51%)
Long-run	0.1281 (12.03%)	0.376 (31.32%)
Medium-run	0.4108 (33.69%)	0.0068 (0.68%)
Short-run	0.8790 (58.48%)	0.0893 (8.54%)
Overall	0.516 (40.29%)	0.045 (4.40%)
In Levels	**Private Universities**	**Public University**
Permanent	0.0966 (9.21%)	0.0492 (4.79%)
Long-run	0.0547 (5.32%)	0.2792 (24.36%)
Medium-run	0.0104 (1.03%)	0.1525 (14.15%)
Short-run	0.0114 (1.13%)	0.1087 (10.30%)
Overall	0.0161 (1.59%)	0.1526 (14.15%)
In Percentage Change	**Private Universities**	**Public University**
Permanent	0.0379 (3.72%)	0.0028 (0.28%)
Long-run	0.0417 (4.08%)	0.0123 (1.22%)
Medium-run	0.0612 (5.94%)	0.0797 (7.66%)
Short-run	0.0078 (0.78%)	0.0709 (6.85%)
Overall	0.0405 (3.96%)	0.0664 (6.43%)

In Levels	**Private**	**Public**
Permanent	0.00012 (0.012%)	0.1537 (14.24%)
Long-run	0.0230 (2.28%)	0.1461 (13.60%)
Medium-run	0.0048 (0.48%)	0.1256 (11.80%)
Short-run	0.0568 (5.52%)	0.0564 (5.48%)
Overall	0.024 (2.41%)	0.1038 (9.86%)
In Percentage Change	**Private**	**Public**
Permanent	0.0081 (0.81%)	0.0072 (0.72%)

Long-run	0.0137 (1.36%)	0.0201 (1.99%)
Medium-run	0.0256 (2.52%)	0.055 (5.37%)
Short-run	0.0791 (7.60%)	0.064 (6.22%)
Overall	0.0396 (3.88%)	0.055 (5.35%)

In terms of K-12 enrollment, the results suggest that private schools exhibit bigger overall effect on Hawaii's income growth relative to that of public schools, confirming the previous result under the bi-variate feedback method. However, the feedback effect is concentrated mainly in the short-run (2-3 years) to medium-run (4-12 years). Conversely, participation in K-12 public education exhibited a significant long-run to permanent effect on Hawaii's income growth relative to that of private education. This result may be explained by the growing number of high school graduates migrating out of the state. For example in 1992, the net out-migration of high school graduates was recorded to be around 690 and increased to 958 four years after. Apparently, families who could afford to send their children to private schools are willing to spend a little more to send them out of state in anticipation of more and better choices in education available in the mainland.

In terms of tertiary level, the overall contribution of public school enrollment to Hawaii's income growth is bigger than that of private universities. However, decomposing the feedback effect by frequency suggest that this dominance of public enrollment in explaining the variation in income growth seem to be concentrated mainly in the short-run to medium-run. Conversely, private universities exhibit a permanent and long-run effect in explaining the variance in Hawaii's income growth relative to that of the public university. This finding might suggests that private tertiary education may be the key to promoting long-run growth in Hawaii. Similarly, one cannot ignore the significant contribution of the public university in building Hawaii's human capital stock in the short to medium-run.

In terms of all educational levels, i.e. primary, secondary and tertiary level combined, participation in public education tend to explain a greater proportion of variance in Hawaii's income growth relative to private education across almost all frequency levels. Again, this finding confirms the previous result found in the bi-variate feedback method.

Concluding Remarks

In this study, an empirical investigation is done to assess and compare the relative contribution of public and private schools to Hawaii' economy. I employed the unrestricted vector autoregression (VAR) model that uses only past regularities and historical patterns in the data to examine the dynamic feedback relationship between participation in education and income growth. The results suggest that across all educational levels, i.e., K-12 and tertiary, participation in public education could be a good predictor of income growth in Hawaii. However, decomposing the feedback effect by frequency suggests that the dominance of public education in explaining the variation in income growth to be concentrated mainly on the short-run to medium-run for tertiary level and long-run to permanent effect for K-12 level. Hawaii state legislature and educators should perhaps take these results as a motivation not to ignore the problems plaguing Hawaii's public schools but should work towards greater improvement and support for public education given its predicted significant overall contribution to the economy. Similarly, the presence of significant contribution of K-12 private schools in the short-run to medium-run and private universities' long-run to permanent effect on Hawaii's income growth should serve as a driving force that could help bring about healthy competition and greater efficiency in the provision of educational services in Hawaii.

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Appendix

Two Related Linear Dependence and Feedback Measures

A. Geweke's (1982) method is used to measure the degree of dependence or the extent of various kinds of feedback between data series. He defined the measures of linear dependence between say, X and Y wide-sense stationary series in terms of the following linear projections,

(1) $Y_t = \Sigma^{\infty}_{s=1}\alpha_{1s}Y_{t-s} + \Sigma^{\infty}_{s=1}\alpha_{2s}X_{t-s} + u_{1t}$

(2) $Y_t = \Sigma^{\infty}_{s=1}\beta_{1s}Y_{t-s} + \Sigma^{\infty}_{s=0}\beta_{2s}X_{t-s} + u_{2t}$

(3) $Y_t = \Sigma^{\infty}_{s=1}\gamma_{1s}Y_{t-s} + u_{3t}$

where the linear feedback measure from X to Y is defined as

$$F_{X\rightarrow Y} = \log\,[\mathrm{var}\,(u_{3t})/\,\mathrm{var}(u_{1t})]$$

while the measure of contemporaneous feedback between X and Y is defined as

$$F_{X\circ Y} = \log\,[\mathrm{var}\,(u_{1t})/\,\mathrm{var}(u_{2t})].$$

So, the measure of linear dependence between X and Y or $F_{X,Y}$ is the sum of linear feedback from X to Y, $F_{X\rightarrow Y}$, linear feedback from Y to X, $F_{Y\rightarrow X}$ and instantaneous linear feedback $F_{X\circ Y}$.

$$F_{X,Y} = F_{X\rightarrow Y} + F_{Y\rightarrow X} + F_{X\circ Y}$$

where $F_{Y\rightarrow X}$ is found by switching X and Y in equations (1) and (3) and in the definition of directional feedback.

B. Building on Geweke's feedback measure, McGarvey(1985) developed a useful alternative summary measure by decomposing the feedback by frequency in order to distinguish between short-run and long-run effects of a given innovation or shock.

In the context of this study, the MA representation of the 3-variable orthogonalized autoregressive system is as follows:

$$\lceil X_t \rceil \lceil C_{11}(L)\ C_{12}(L)\ C_{13}(L) \rceil \lceil \upsilon_t \rceil$$

$$\hat{e}Y_t | = \hat{e}C_{21}(L)\ C_{22}(L)\ C_{23}(L) |\ | \omega_t |$$

$$\lfloor Z_t \rfloor \lfloor C_{31}(L)\ C_{32}(L)\ C_{33}(L) \rfloor \lfloor \eta_t \rfloor$$

where for example, $C_{21}(L)$ gives the response of Y_t to innovations in X_t and, the overall feedback from X to Y is defined as

$$F_{X \to Y} = \log [\mathrm{var}(Y_t) / \mathrm{var}(Y_t) - \Sigma^{\infty}_{s=0} c_{21}(s)^2 \mathrm{var}(\upsilon_t)]$$

The transformation ($1\text{-}\exp[-F_{X \to Y}]$) gives the proportion of Y's variance explained by shocks to X.

To distinguish between short-run and long-run effects, the overall feedback is decomposed frequency bands. Feedback from X to Y over the interval (λ_1, λ_2) is defined as

$$f_{X \to Y}(\lambda_1, \lambda_2) = \log [(\int_{\lambda 1}^{\lambda 2} S_Y(\lambda) d\lambda) / (\int_{\lambda 1}^{\lambda 2} S_Y(\lambda) - C_{21}(\lambda)^2 \sigma_\upsilon^2) d\lambda)]$$

since $\mathrm{var}(Y) = (1/2\pi) \int_{\pi}^{-\pi} S_Y(\lambda) d\lambda$ and $S_Y(\lambda) = C_{21}(\lambda)^2 \sigma_\upsilon^2 + C_{22}(\lambda)^2 \sigma_\omega^2 + C_{22}(\lambda)^2 \sigma_\eta^2$. So, if υ_t contributes nothing to the variance of Y at frequency λ, the ratio will be one and the feedback measure will be zero. Note that a period of a cycle is defined as the ratio of 2π to the frequency.

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Local Flexibility within an Accountability System

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Abstract

Over the past decade, several states have created comprehensive accountability systems designed to increase student learning in public schools. These accountability systems are based on "high-stakes" standardized testing of a state curriculum. Rewards and interventions for local educators are based largely upon students' performance on these tests. Using the recent accountability reforms in Georgia as a backdrop, this article considers the role of local flexibility within such an accountability system--flexibility over paperwork, resources, personnel, and curriculum for local educators. Increased flexibility for local educators is not merely an option in a world where local educators are subject to a comprehensive accountability system imposed by a state--it is a requirement for success. We make a case for providing local flexibility and provides a discussion regarding types of flexibility, vehicles for granting flexibility, and who should receive flexibility.

I. Introduction

Over the past decade, several states have created comprehensive accountability systems designed to increase student learning in public schools. These accountability systems are based on "high-stakes" standardized testing of a state curriculum. Local educators face consequences based on how well their students do on these exams. They receive rewards for good student performance and are subject to interventions to rescue children from low-performing schools. Using the recent accountability reforms in Georgia as a backdrop, this article considers the role of local flexibility within an accountability system--flexibility over paperwork, resources, personnel, and curriculum for local educators.

This increased flexibility involves a decentralization of authority that is broader than, but inclusive of, school-based management. To implement the increased flexibility for local educators contemplated in this article would require profound decreases in the dizzying array of state and federal regulations governing local districts, schools, and personnel.

Increased flexibility for local educators is not merely an option in a world where local educators are subject to a comprehensive accountability system imposed by a state--it is a requirement for success. Failure to provide local educators with flexibility to meet statewide learning goals for students would lead to blurred lines of accountability, and would not capitalize on the unique talents of local educators and other unique local circumstances, both of which would ultimately prevent accountability systems from realizing their full potential. In addition, this failure will likely prevent accountability systems from surviving the political battles that periodically surround public education. This article makes a case for providing local flexibility within an accountability system and provides a discussion regarding the granting of flexibility, types of flexibility, vehicles for granting flexibility, and who should receive flexibility.

To those ends, section II provides an overview of comprehensive accountability systems that measure school and student performance and hold local educators accountable for this performance. Section III describes the appropriate role for local flexibility within such an accountability system. Types of local flexibility and vehicles for granting this flexibility are presented in sections IV and V. Section VI discusses who should get flexibility, including guiding principles for state policymakers. Section VII contains concluding remarks.

II. Overview of Accountability

Several states, including Florida, Kentucky, North Carolina, and, most recently, Georgia, have created comprehensive accountability systems designed to increase student learning in public schools. A "comprehensive" accountability system has each of the following three components:

1. **Goals** for student learning at all grade levels.
2. Accurate **measurement** of student learning outcomes.
3. **Rewards** for local educators (superintendents, principals and other administrators, and teachers) for good student outcomes and **interventions** to rescue children from failing schools.

We served on the staff of the Governor's Education Reform Study Commission (GERSC) that led to the creation of the comprehensive accountability system for Georgia's public schools.[1] At the first Commission meeting in June 1999, Georgia Governor Roy E. Barnes announced the "charge" for GERSC:

> Let us come to the table and pool our best ideas, let us bring our best-hearted intentions, and let us steel up our best resolve to ensure for our children tomorrow a better system of public education than we find today.
>
> --Georgia Governor Roy E. Barnes[2]

In his speech, Governor Barnes announced the formation of four committees, the most ambitious of which was titled "Accountability."[3] In describing the role of the Accountability Committee, the Governor said he wanted an end to "excuse-based education" in Georgia public schools. The committee members included business executives, legislators from both major political parties, retired educators active in education policy circles, and a retired college president (who is currently a professor).[4] The Accountability Committee heard testimony from several local, regional, and national researchers and professional educators about accountability approaches in other states and important conceptual issues in designing an accountability system. Many of the individuals who made presentations were veterans of the standards and accountability movement and recommended comprehensive standardized testing on public school students in several subjects.[5] The committee members were told that these exams should be curriculum-based exams called criterion-referenced tests, and these exams could be used as an important measuring stick for evaluating the performance of individual students, educators, schools, and districts. Using such exams for accountability purposes is commonly known as "high stakes testing."

Although the Accountability Committee made no formal recommendations, the committee members coalesced around the following ideas:

- Students in grades 3 and above should take curriculum-based exams at the end of each school year, based on the state of

Georgia's Quality Core Curriculum.

- There should be threshold scores on these exams that indicate how well each student has mastered the material.
- Local districts, schools, and educators should be held accountable for how well their students performed on these exams by a system of rewards for good performance and interventions for persistently low levels of student learning.
- These rewards and interventions should be based on levels of student learning and improvements.
- There should be a new, agency, independent of the state's Department of Education, created to monitor performance of the exams and other educational outcomes and to administer rewards and interventions.

House Bill 1187, passed by the Georgia General Assembly in the Spring of 2000 and signed into law by Governor Barnes set up a state accountability system for public education in Georgia that closely followed the thinking of the members of the Accountability Committee (Chapter 20 Section 14 of the Georgia Official Code).

For the first time, Georgia had an accountability system based on the end product of education--student learning. The state Department of Education, which prior to the formation of the education commission had already begun refining the state curriculum (QCC) and creating curriculum-based exams, would administer statewide exams to students in grades 3 and above. These exams were first administered in some grades and subjects in the Spring of 2000, and they will be fully implemented in all grades and subjects by 2002. For both schools and educators, the law provides several rewards for good performance and interventions for persistently low performance--performance defined in terms of student learning of the state's curriculum and other, currently unspecified, student outcomes. Rewards and interventions will be implemented once the exams are fully implemented. The rewards and interventions passed under the new accountability law include[6]: 1) Two grades (A through F) will be awarded to each school, where one grade will based on levels of student learning outcomes and the other grade will be based on improvements in student learning outcomes; 2) All certified personnel at a school will be given a $1,000 bonus for each "A" grade the school receives and a $500 bonus for each "B" grade.

"If a school has received a grade of D or F for a period of two consecutive years or more, the State Board of Education could appoint a school master or management team to oversee and direct the duties of the principal of the school in relation to the school until school performance improves and the school is released from intervention by the director, with the cost of the master or management team to be paid by the state."[7]

"If a school has received a grade of D or F for a period of three consecutive years or more, the State Board of Education shall implement one or more of the following interventions or sanctions, in order of severity:

- (A) Removal of school personnel on recommendation of the master or the school improvement team, including the principal and personnel whose performance has continued not to produce

student achievement gains over a three-year period as a condition for continued receipt of state funds for administration
- (B) Allow for the implementation of a state charter school through the designation by the State Board of Education;
- (C) Mandate the complete reconstitution of the school, removing all personnel, appointing a new principal, and hiring all new staff. Existing staff may reapply for employment at the newly reconstituted school but shall not be rehired if their performance regarding student achievement has been negative for the past three years;
- (D) Mandate that the parents have the option to relocate the student to other public schools in the local school system to be chosen by the parents of the student with transportation costs borne by the system; or
- (E) Mandate a monitor, master, or management team in the school that shall be paid by the district."[8]

Although the newly created Office of Education Accountability (OEA), independent of the state's Department of Education, has not yet determined what student learning outcomes will determine these school-level grades that will drive the rewards and interventions. Nevertheless, it is mandated in HB 1187 that student performance on the curriculum-based exams, both levels of performance and improvements, will be the main determinant of each school's grades.

The cash bonuses to teachers and the potential interventions, especially public school choice and opening a state-funded charter school in the neighborhood of a failing school are not widespread across the U.S.[9]

Although the issues involved are extremely important, our purpose here is not to discuss the merits or demerits of accountability systems based on high stakes testing and state mandated rewards and interventions.[10] This article considers the appropriate role of local flexibility within a comprehensive accountability system and several implementation issues, including what kind of flexibility to grant, how to grant it, and to whom should flexibility be granted.

III. Flexibility Within An Accountability System

In this section, a case is made for providing local educators and schools with flexibility--if and only if the local educators are held accountable for their performance by an outside entity.[11] At the end of this section, we discuss the issues of negative unintended consequences that may be present in systems of comprehensive accountability and governance in a decentralized system.

The argument for flexibility under a system of accountability has been made before (Hanushek, 1994; Hannaway, 1996). We reiterate their claims and discuss implementation and political economy concerns as well.

Comprehensive accountability means three things: goals for student learning, student learning outcomes are accurately measured, and local educators (school boards, superintendents, principals and other administrators, and teachers) are subject to rewards for good student outcomes and interventions to rescue children from failing schools. If truly held accountable for student learning *outcomes*, local educators have strong incentives to do *whatever it takes* to achieve the specified student learning goals.

Without a significant degree of control over the means for education improvement, such as budgets, personnel, and curriculum, local educators cannot ultimately be held accountable for achieving the assigned end of improving and achieving a high level of student learning. This point is best demonstrated by considering two polar opposite forms of "accountability."

Accountability over Inputs, Process, and Program Implementation

Suppose the state were to give each school student learning targets and a prescription for how to achieve those targets. If a particular school obediently implemented the state's prescription and the level of student learning was low and was not improving, then this failure belongs to the state--not the school. This school would be responsible for properly implementing the state's prescription; the school would not be ultimately responsible for student learning. Local educators, who possess better information about their own unique talents and the local circumstances, including the types of students, resources, and environment, may wish to deviate from the centrally prescribed education formula because they deem such changes as beneficial in their local situation. Local educators who acted on those wishes would be subject to sanctions for not following the script they were given.

This approach to "accountability" makes state policymakers responsible for student learning outcomes and local educators responsible for implementing the state's prescription. This blurs the lines of accountability, because lawmakers, parents, and other citizens will inevitably blame local educators for any low performance by students. In addition, the unique talents of local educators and circumstances of local schools are not exploited to best achieve the state's goals. Taken together, these two problems will frustrate local educators and could lead to poor implementation of state education policy, higher teacher and administrator attrition, and even a reversal of state education policy regarding standards and accountability as local educators make credible arguments that state policy inhibits local creativity and misplaces blame for any failures.

(Results-Based) Comprehensive Accountability

A second approach is to have state and local education authorities articulate the desired standards for student achievement and hold schools and educators accountable, through rewards and interventions, for meeting or failing to meet the standards. Choosing the second path, the path of accountability for student learning and flexibility on "how to" meet the goals, local educators are encouraged and empowered to pursue their own paths for success, and, thus, they would be ultimately responsible for the results of their own initiative.

The purpose of flexibility within a results-based accountability system is to allow educators and schools to create their own roadmaps for educational success given their unique student populations, circumstances, and personnel. Although local school systems, schools, administrators, and teachers across the nation have varying degrees of flexibility, even when there is little or no local accountability, the level of flexibility that is desirable under a results-based accountability system is much larger than that which is desirable under the typical notion of "accountability"--accountability over on inputs, process, and program implementation.[12]

School-based management plans (flexibility plans) implemented in various states across the nation do not typically provide much local flexibility, and there is not any evidence that school-based management alone leads to better student outcomes (Summers and Johnson, 1996). In fact, an Education Commission of the States report cites a RAND study that concluded that no school-based management effort "has yet created the hoped-for dramatic improvements in school quality (Education Commission of the States, 2000)."

State policymakers in Georgia, and in other states as well, are reluctant to give local educators more autonomy. This reluctance is understandable given the lack of true accountability in most states. In a world without results-based accountability, many education rules and regulations are absolutely necessary: Relative to a world with no accountability over process or results, such rules and regulations promote good student outcomes. The goal of rules and regulations is to elicit good school performance, students learning beyond expectations. However, most local educators believe that many of the current laws and rules, through unintended consequences, hinder them from offering the best possible education to each child. However, eliminating such rules is not necessarily warranted--local educators have little incentive to act in the best interest of children without the rules if they are not held accountable for student outcomes--it is human nature. This is not a characteristic of educators, but one of humans in general.[13]

If given autonomy, what incentive does a local educator have to pursue whatever it takes to make sure that students achieve if they are not held accountable for student learning outcomes? If given autonomy over hiring decisions, what is to stop a principal from hiring a relative or friend who may not be competent as a teacher? Nothing unless there are certification rules and other regulations to drastically mitigate the chance of this occurring. (Of course, no set of rules can completely eliminate all corruption or well-intentioned, but misguided, policies). However, these rules limit the principals' flexibility over who he or she can hire to teach. These rules are desirable if the principal is not held responsible for student learning outcomes. If principals are held responsible, such rules may not be necessary, and may even harm student learning by denying some good teachers the ability to teach in our public schools.

Given the reluctance of state lawmakers and officials to grant local flexibility, local educators, who desire more flexibility over resources, personnel, and curriculum, because they believe that their students will benefit from doing things in different ways, will have to accept results-based comprehensive accountability (student learning goals, measurement of progress toward the goals, and rewards for success and interventions to rescue children from persistent failure) in exchange for the increased flexibility. But there is another side to that coin: State policymakers who wish to impose results-based comprehensive accountability systems on local educators may have to grant increased flexibility to see their accountability reforms realize their full potential and to make their accountability reforms "stick" politically. Failure to judiciously increase flexibility may lead to a gradual erosion of accountability measures. If local educators who have little or no flexibility to improve schools are blamed for any school failures, then such a situation is not likely to be politically tenable. Those wrongly blamed will make the arguments that they are held responsible for things beyond their control, and the end result could be the erosion of accountability based on student learning--and any benefits that would come from such an incentive system.

There are opportunities for obtaining flexibility available to local schools under current Georgia laws and regulations, and, by and large, local educators are not taking advantage of them. These opportunities include the waiver process, charter school conversions, and demonstration schools. Although there are many waiver petitions to the state's Department of Education to gain relief from state regulations, the vast majority of them are for the same two or three things (e.g. block scheduling). Charter school conversion opportunities have been available since 1993, and there have been less than 30 conversions (out of 1,887 schools). The similar demonstration school process has been available since the mid-1980s, and, to our knowledge, there has been only one application. Georgia has recently begun implementation of a results-based accountability system, and this new era will likely result in a large increase in the interest of local educators in utilizing the existing flexibility to do things in different ways--because they are now held accountable for student learning. If local educators under a system of accountability do not wish to increase their autonomy over resources, personnel, and curriculum, then we suspect that the rewards for good performance and/or the consequences for failure are not providing strong incentives or motivation. That is, the accountability system would not be comprehensive because it does not contain adequate rewards and interventions.

Negative Unintended Consequences and Increased Local Flexibility

Many education policymakers and researchers have expressed concerns about negative unintended consequences that may result from inaccurate measurement of student and school performance--which may cause schools with low and high average student performance from being incorrectly sanctioned or rewarded; measuring only some student outcomes--which will likely lead to too much emphasis on what is easily measurable; and incentives--which may distort educators' efforts in unintended, undesirable ways, such as a decline in collegiality which decreases inter-teacher professional development. Hannaway (1996) suggests that parents, the actors in a child's education closest to the situation, can be empowered, via decentralization, to act as monitors of the education process to minimize the harm caused by any negative unintended consequences of incentives and flexibility (decentralization). Through local (individual) school councils or via some form of parental school choice, parents will be empowered to make their voices heard regarding the actions of individual schools. Under its 2000 accountability reforms, Georgia created local school councils composed of two parents, two "businesspeople," two teachers, and the school principal--the majority is non-school employees. Legally, these school councils have almost no power, but it will be interesting to see the impact of their mere existence on school and district-level decision-making.[14]

Governance

Under regimes of centralized decision-making in public education, citizens exert their influence by electing school board members and/or federal, state, and local lawmakers who in turn make decisions regarding school policy. Providing increased autonomy to un-elected local educators would disenfranchise parents and other citizens from a large degree of the education policymaking process. Therefore, it is likely that any increase in decentralized authority would not survive politically if parents and other taxpayers did not have some mechanism of exercising their political rights over their children's schools, or the schools they finance. As stated above, two ways to implement this mechanism include local school councils and enhanced school choice. Given this line of reasoning, one may include "parents and other citizens" in the list of local educators who receive increased autonomy under increased local flexibility. This issue is not necessarily one of giving parents and other citizens more *direct* decision-making authority; the issue is at what level do the citizens' representatives make education policy decisions.[15]

Issues for State and Federal Policymakers

The first issue facing policymakers is whether there is a comprehensive accountability system that is solid enough to contemplated large increases in local flexibility. If yes, then the second issue is whether existing, perhaps largely unused, flexibility under current laws and regulations is enough to empower local educators to make whatever changes are necessary to increase student learning, which makes local educators ultimately responsible for student learning. A third issue is whether parents and other citizens are empowered to participate in education decision-making and to monitor their local schools to minimize the harm caused by any negative unintended consequences. This next section discusses areas in which states may consider granting increased flexibility to local educators.

IV. Types of Flexibility

Under a comprehensive accountability system focused on student learning outcomes, state and federal laws and/or regulations can be repealed to provide local educators with flexibility over four broad areas: Reporting Requirements; Financial Resources; Human Resources; Curriculum. We briefly discuss decentralizing authority in order to increase local flexibility over these four areas, and then we list specific examples of increased flexibility that could be granted to local educators, where these examples come from the flexibility offered to public schools that currently operate under a high degree of accountability: charter schools.

Reporting Requirements

Local educators, in both district offices and individual schools, must complete a lot of reports for both the state and federal governments. This paperwork is typically in the form of reports that must be completed before and after the receipt of funds from federal and state education programs. The pre-funding reports are typically plans on how the particular pot of money would be spent, and the post-funding reports tend to be assessments of how successful the particular program was at implementing the program--the program's effect on student learning is all too often amorphous or nonexistent in post-funding reporting. Thus, the purpose of this oversight is to ensure that the money is spent in ways the state or federal government deems best for the students. Under the new comprehensive accountability system in Georgia, the Office of Education accountability will conduct results-based assessments. These will be formal assessments and performance measurements for student learning such as standardized curriculum-based exams. Given that these assessments directly measure--student outcomes--what the current oversight measure indirectly, much of the current reporting requirements may be superfluous.

Filling out paperwork is arduous for local schools and systems, especially for smaller school systems. One associate superintendent of a small school district who we spoke with said that he spends about 30% of his time on filling out reports--time that he feels could be better spent on instructional and programmatic improvements. In addition, the time and resources previously devoted to filling out and monitoring paperwork could be used to train local educators to be better managers of their increased flexibility.[16]

Reduced paperwork has practical flexibility benefits as well. For example, some school districts have directors of technology. These directors must fill out a lot of paperwork on how state technology monies are spent. Any time these directors spend filling out paperwork is time not spent training teachers how to use the technology.

We list two alternative ways for the state to reduce reporting requirements on local educators:

1. Have state education departments satisfy much of the reporting requirements imposed by the federal government; under accountability reporting requirements, state departments of education have the information necessary to fill out much of this paperwork. If the state assumed this reporting burden, local educators--the educators closest to the students--would have more time to focus on teaching and learning.
2. Give local schools systems and schools more flexibility over financial resources. Having flexibility over financial resources would allow local educators to spend less time reporting (to the state) how each dollar is spent.

Financial Resources

Many public school districts receive monies from states through foundation grants and categorical grants. Individual public schools, in turn, receive monies from school systems. Superintendents and principals could be empowered to spend more state monies in the ways they deem most appropriate to best educate their unique student populations. In addition, any state regulations, explicit or implicit, of local money could be repealed as well. The purpose of flexibility over financial resources is to empower those closest to the children to try new things, to augment existing programs that are working, and reduce or eliminate programs that are not working for their particular students (such programs may work in other places for idiosyncratic reasons). A by-product of this flexibility would be to reduce paperwork for system and school administrators and teachers, which would allow them to spend more time focusing on doing whatever it takes to improve their schools.

A good way to demonstrate flexibility over financial resources is through an extended example. Individual school districts in Georgia typically get English to Speakers of Other Languages (ESOL) dollars from the state. Many small school districts have only a small number of ESOL students, so the state money they receive for the ESOL program does not cover a full teacher's salary. School districts that have such scale issues must use locally generated funds or other state funds for personnel to pay the balance of an ESOL teacher's salary. In addition, the district would have to use local funds for ESOL materials. Authority to use other state funds to purchase ESOL materials would free up the local money for other programs that local educators deem most important given their particular student populations, faculty, staff, and environment.

Where would "other state funds" come from? Wouldn't those other state funds be better spent on the programs for which they were earmarked by the state? Perhaps, but consider an additional scenario. School districts in Georgia often receive money from the state based on the system's "needs," needs as determined by the state, and these needs tend to be drive by overall FTE counts and FTE counts for various student sub-groups that are calculated to the hundredth decimal place. For example, a system may receive state funding for 2.35 guidance counselors. Per state regulations, the system that received funding for 2.35 guidance counselors must hire two guidance counselors. Under Georgia law, the remaining 35% of a guidance counselor must be spent on guidance counselors or direct teaching personnel, or else the money reverts back to the state. That is, the local system must use all that state money for guidance counselors or direct teaching personnel or lose it. Allowing local schools and systems to use the guidance counselor money for guidance counselors or direct teaching personnel is an example of flexibility over resources available under current laws and regulations. However, there could be increased flexibility over that state taxpayer money. Suppose local educators believe that because of their superior guidance counselors or students (of for any other idiosyncratic reason) that the money that was originally intended to hire 35% of a guidance counselor does not need to be spent on guidance counseling or direct teaching personnel. Suppose the school system would rather use those state funds for a competing, albeit worthy, program. Suppose the school system wants to use those funds for ESOL materials. Under current Georgia law, this money must be spent on hiring a third guidance counselor or part of a teacher, and this requirement may not lead to the highest and best use of those funds.

Another good example is maximum class size restrictions.[17] Without a comprehensive accountability system, such class size restrictions may be necessary to ensure that the state money is spent wisely. However, under incentives from a comprehensive accountability system, can states trust local educators to spend that money wisely? Are smaller classes always the best use of those funds?

Alternatives to give local educators flexibility over financial resources include having fewer state programs and give the monies formerly earmarked for programs to local schools on a foundation basis, and allowing local educators to spend monies earmarked for less than 50% of a position in any ways they deem necessary.

Human Resources

Regarding what types of individuals may be hired for some tasks and how much individuals are paid, systems and individual schools in Georgia are bound by three major state laws: teacher certification, "fair dismissal" (tenure), and the salary schedule.

The purpose of certification is to ensure that only individuals of a sufficient competency are permitted to be teachers. Under certification laws and regulations, sufficient competency of potential teachers is determined centrally, not by local systems and schools. This is in contrast to higher education and private K-12 education where potential teachers are evaluated by individual schools and departments within schools. An unintended consequence of certification requirements is that some prospective teachers feel that they face too large of a barrier to offering their services to schools. How many prospective educators are deterred is unknown.

Individual schools and systems could be granted flexibility over who is permitted to teach. The elimination of certification requirements, including alternative certification requirements, would open the doors to teaching to individuals who are not willing to go through the process of obtaining certification. For example, programs such as Teach for America carefully screen recent college graduates and place them as teachers in schools. These new college graduates typically did not study education, and many of them wish to teach for only a short period of time. Local systems and schools could be empowered to decide for themselves if they wish to screen new college graduates, older folks looking for second careers, or others who are not certified to see if any or many of them would make good teachers. Thus, the issue is not one of teaching quality; it is a question of who decides whether an individual is competent to teach. In addition, states could recruit and screen exceptional college graduates who did not study education as undergraduates and any others interested and market these potential teachers to local systems and schools. Such a state program would provide local educators with flexibility by expanding the pool of possible teachers.[18]

Flexibility over "fair dismissal" (tenure) provisions could be granted to local schools or school systems--individual school systems or schools could be granted the authority to design their own "fair dismissal" policies. Held accountable for results, individual systems and schools would have the incentive to create fair dismissal policies that allow them to maximize student learning. Georgia decentralized its statewide tenure provisions, by severely weakening them, as part of its 2000 education reform law. Only the Clayton County school district, so far, has created its own tenure provisions that provide more protections than the new state law. Nevertheless, these provisions are weaker than the previous state fair dismissal protections (Sansbury, 2000).

Many southern states have a minimum teacher salary schedule that is based on years of service and training. Elimination of a state-mandated salary schedule for teachers would allow individual schools or systems to decide whether they want to pay less to some teachers so that they may pay more to teachers they deem as important contributors to the overall mission of the school. Used judiciously, such policies could help schools retain good teachers, and provide incentives for bad teachers to find something else to do. An additional form of flexibility would be to allow for schools to lure teachers by offering to start them at a higher step on the schedule than their years of service and training would dictate. This flexibility would allow schools to pay more to better teachers, which may enhance retention of these superior teachers.

Curriculum

In the new standardized testing in Georgia, students will take exams designed to test Georgia's Quality Core Curriculum (QCC). The QCC is designed to be the minimum amount that students should learn in the various grade levels and subjects. Local educators could remain free to augment the QCC in new and creative ways. Of course, mandating statewide curriculum-based testing severely restricts local educators' autonomy over curricular decisions. Therefore, states are responsible for the quality of the curriculum, and, under flexibility, local educators are responsible for whether students' master the curriculum.

What specific flexibility ought to be granted?

One level of flexibility is the current level of state and federal regulation applied to private schools, which is minimal. A less extreme level of local flexibility is the flexibility requested or the flexibility actually granted to "traditional" and "conversion" charter schools. Traditional charter schools that are public schools that are not neighborhood public schools; traditional charter schools are schools of choice. Traditional charter schools face a stronger set of incentives than other public schools; two outside actors hold them accountable for results, a central authority and parents. Traditional charter schools are, in theory, able to gain a large degree of autonomy in exchange for the possibility of a death sentence--if the charter school does not meet performance goals specified in their charter, a local school district or a state may revoke the charter, which means the school closes. In addition, traditional charter schools are held accountable by parents who may or may not decide to enroll their child in the charter school. Where traditional charter schools exist, parents have the option of sending their child to their neighborhood public school or the charter school. Typically, before central authorities have closed failing charter schools, there have been dramatic drops in student enrollments at these schools.

Given these strong incentives to provide a high quality education to its students, traditional charter schools have the incentive to seek to free itself from any rules and regulations that hinder teaching and learning. Therefore, any state or federal entity that seeks to identify any rules and regulations that may hinder teaching and learning in neighborhood public schools should look to rules and regulations that charter schools seek to escape, and the rules they actually escape.

Conversion charter schools are neighborhood public schools that have received increased flexibility from the state. These schools are different than traditional charter schools in that they are not schools of choice. According to officials in the Georgia Department of Education, conversion charter schools ask for, and receive, far less local autonomy than traditional charter schools. Conversions have maintained most of their previous organizational structure and curricular goals, but asked to be exempt from such things as report cards regulations, how they handled certain categorical funds, and when they tested their students. It is likely that these schools could not obtain even more flexibility, and do not seek to do so, because they are not schools of choice. That is, they do not operate under the strong accountability faced by traditional charter schools. Perhaps the change in school governance in Georgia via school councils will provide the accountability and citizen authority necessary for conversion charter schools to ask for and receive increased flexibility.

For the research reported here, we interviewed several individuals about their experiences with flexibility and the flexibility given to charter schools:

- Beverly Shrenger, Coordinator, Georgia Charter Schools, Georgia Department of Education;
- Deborah McGriff, Edison Schools, Inc.;
- Rich O'Neill, Edison Schools, Inc.;
- Greg Giornelli, Principal, Drew Elementary School, a traditional charter school in Atlanta, GA;
- Regina Merriweather, Principal, Druid Hills High School, a conversion charter school in DeKalb County, GA;
- Jeffrey Williams, Georgia School Superintendent's Association;
- Paul Hill, University of Washington, RAND Corporation.

Based on telephone interviews, we compiled a list of rules of regulations that charters typically seek to avoid. Any central authority considering whether to abolish rules and regulations facing local educators should look to the relief given to charter schools because, under comprehensive accountability for results, all neighborhood public schools will have at least one important characteristic of charter schools--responsibility for student outcomes and consequences based on those outcomes.

1. *Salary Schedules*. Many charters want relief from salary schedules in order to have the capability to pay what Edison Schools, Inc. refers to as "comparable and competitive" salaries. These salaries are made up of an hourly rate, a yearly percentage increase, incentives and bonuses, and stock options.
2. *Curriculum*. Schools want the ability to develop the criteria for their own lesson plans. Some charters use such prescribed curriculums as Core Knowledge while others are totally innovative and use curriculums particular to that school. For example, Edison schools prefers to use its own curriculum for at least 70% of class times, and the state or district can dictate the remaining 30%.
3. *Non-Categorical Use of Funds*. Traditional charters typically receive complete freedom over their budget allocations at the school site. Conversion schools typically ask for only limited flexibility or one-time flexibility. For example, conversion charter schools may ask to use some funds ear-marked for extra-curricular activities to buy technology.
4. *External Reporting*. The type and amount of process reporting to chartering agencies, school boards, and the Georgia State Department of Education is often less than what is required of traditional public schools.
5. *Grading*. Many charter schools want to have the ability to deviate from traditional grading scales. Druid Hills Charter, a conversion, changed its grading scale so that the letter grade "D"

was inclusive of the 60th to 69th percentile. Some schools want to implement a policy of no grading, checklist reports, or even rely strictly on portfolio's to show students achievement.

6. *Seat Time and Scheduling.* Charters have asked to be exempt from the states requirement of 150 hours of clock time per year. Edison Schools have a longer school year than most public schools, while some charters opt for longer school days. This coincides with the request to alter the daily schedule for students (i.e. block schedule) that require different time configurations than most districts currently operate under.
7. *Textbooks.* Since many charters wish to fully implement their school design, they request the ability to choose textbooks that may or may not be approved by the local school board.
8. *Certification.* Teacher certification has not been a large issue for many charters thus far, as most charters have hired primarily certified teachers. Charters do exercise their ability to hire non-certified teachers in hard to fill subjects such as math, science, and world language. Additionally, some charters allow teachers certified for grades k-3 to teach 4th grade, for example.
9. *Promotion and Retention.* Charters want the opportunity to choose which students are promoted and retained each school year. Charters feel that this exemption is imperative if they are going to be held accountable for each student's eventual success or failure.
10. *Assessment instruments.* Some charter schools like to perform their own assessments, and request waivers from assessments, such as norm referenced testing, that are notused for accountability purposes.
11. *Technology.* Charter schools like to use technology in a way that is consistent with their instructional goals. According to the U.S. Department of Education, 96% of charter school classrooms nationwide were equipped with computers. However, charters like the capability of choosing their own software, the amount of time each student uses a computer and the ability to buy computers with multi-media capabilities.
12. *Service Providers.* Charter schools are typically allowed to choose what non-educational (maintenance, janitorial, insurance, purchasing, legal, health, social, before/after school, transportation, athletic, etc.) services are offered and who will be the provider of those services. More than two thirds of charter schools nationally either provided the service themselves or used outside providers.

Suppose a state government decides to provide local educators with flexibility over at least some of these areas. This local flexibility raises a governance issues regarding consent of the governed. Parents and other citizens, through their influence on the political process, may permit schools of choice more latitude over their resources, personnel, and curriculum because no parents are forced to send their children there. Since traditional charter schools are schools of choice, all parents who choose one for their children have revealed they support what the school is doing differently than the neighborhood public school. This argument would suggest that flexibility given to conversion charter schools is the appropriate amount of flexibility to provide, in exchange for accountability. However, under Georgia's new accountability law, individual school councils were created.

Although these councils do not currently have much authority, they would surely be megaphones for parents' and other citizens' voices to be heard in school-level discussions of how to best use any increased flexibility. Therefore, under the stronger consequences facing local educators under Georgia's new accountability reforms and the presence of the local school councils, the wider latitude given to traditional charter schools is possible for neighborhood public schools. Another mechanism to solve the governance problem would be some form of public school choice.

V. What are the vehicle(s) for granting flexibility?

Once a state, or federal, government decides to grant increased local flexibility because of heightened accountability for local educators, how can it complete that task? Alternative vehicles for granting flexibility include:

1. An entity that analyzes each and every state, or federal, rule and regulation and decides which ones are not needed, and which ones may be abolished without changing a law. This entity would be analogous to then Vice-President Gore's National Performance Review that was created in 1993. This new entity, or a piece of an existing entity, could be charged with analyzing each and every state (federal) regulation of local systems and schools. Regulations deemed to be impediments to teaching and learning would be eliminated by the entity.
2. A legislature and executive could analyze each and every state law and decide which are no longer needed under a comprehensive accountability system. Only the legislature and executive can change existing state (federal) laws. The legislature could devote some portion of a legislative term to reviewing existing laws regarding education and deciding which laws are antiquated given an environment of results-based accountability. Perhaps a one-time bipartisan committee could be formed to begin the task. This vehicle for granting flexibility was used in Texas and Florida.[19]
3. A permanent entity that has the sole responsibility of hearing petitions from individual schools and decides whether to grant a large degree of autonomy to individual schools in exchange for a promise of increased student learning beyond normal expectations. This is similar to the Georgia waiver process. The difference is that flexibility will be granted for a whole range of items at one time, in exchange for tangible, measurable promises of increased student learning. A permanent new entity, or piece of an existing entity, whose sole mission is to hear petitions from local systems and schools for large degrees of flexibility in exchange for accountability would provide a permanent vehicle for enhancing flexibility and accountability. Creating an entity that has hearing these petitions as its sole mission would expedite the waiver process, and one of its goals would be to become less arduous than the current waiver process. Agreements between this entity and individual schools or systems would be akin to performance contracts. Failure by the local educators to live up to the increases in student learning specified in the agreement could result in the loss of the flexibility. Any significant regression in student learning after

> receiving the new flexibility could result in a state-mandated intervention, which would mean less local autonomy than was initially present.

VI. Who Gets Flexibility?

Under comprehensive accountability based on student learning (results), flexibility could be granted in three ways: as a feasible alternative, in a world of accountability based on results, to empower **all** local principals and teachers find their own roadmaps for success given their unique student populations, circumstances, and personnel; as a reward to a school or system for high levels and/or improvement in student learning; as an opportunity to low performing schools to improve.

Thus, differing degrees of flexibility may be granted all schools, only schools that demonstrate a high level of performance, and/or only schools that demonstrate a low level of performance. Texas, for example, dramatically reduced the regulations that the Texas Education Agency imposed on local systems and schools. After the passage of their accountability law in 1993, the Texas House and Senate Education Committees met jointly to eliminate all state laws and policies that addressed "how" local educators should provide schooling to children. At that time, the chairs of each committee were from different political parties, and the "scrubbing" of their state laws and policies went very well and was bipartisan. The flexibility law that subsequently passed stated that local systems had to abide by the accountability code and the funding code. The law also contained specific language to prevent the Texas Education Agency from making any policies that did not pertain to the accountability or funding portions of the Texas state code. The relationship between the state and local school systems in Texas is one of "if it is not in the accountability or funding code, then you can do it. No questions asked." Examples of regulations that were eliminated in Texas include: the length of the school day and year, seat time for specific subjects, and the minimum required number of library books per pupil.

Texas has not yet been able to document to what extent the increase in flexibility led to its recent increases in student achievement. (We obtained all information about Texas from a phone interview with Dr. Criss Cloudt, Associate Commissioner, Office of Policy, Planning, and Research, Texas Education Agency. Dr. Cloudt made a presentation to GERSC 1999.)

Schools who demonstrate a high level of performance and/or improvement have demonstrated that they have "what it takes" to manage a school under the current rules and regulations. Such successful leadership could be entrusted with even greater flexibility, to see if they could increase school performance even higher. However, one could argue, "Why rock the boat?" if the school is already high performing. We want to "rock the boat" because we suspect that added flexibility, under accountability, will allow high achieving schools to do even better. Texas provides additional flexibility to schools that receive an "exemplary" rating from the state.

Schools whose students are persistently low performing may credibly suggest that state laws and regulations are due part of the blame for this low performance. Some suggest that these schools should be given added flexibility, above what is given to other schools, in order to see if they can improve. Others argue that giving these schools added flexibility would reward failure.

Guiding Principles of Granting Flexibility

Based on the arguments made here, we offer three guiding principles for any state or federal policymakers deciding whether to grant flexibility to local schools, systems, and educators:

1. *Keep your eyes on the prize.* The purpose of flexibility is to allow educators to better organize their systems, schools, and personnel in order to increase student learning.
2. *Trust but verify.* Flexibility should only be granted in exchange for accountability, a promise that student learning would increase beyond normal expectations. Failure to meet the terms of the promise should result in loss of flexibility. If under the flexibility, student learning in the school significantly regresses, the school should receive help, which would leave the school with less flexibility than it had initially. Under this principle, flexibility could be given to all schools, including low performers.
3. *Remove existing barriers to creativity that strives for excellence.* Any system or school that wants to improve should be allowed to try, in exchange for accountability for results.

VII. Conclusion

With the passage of HB 1187 in the year 2000, Georgia's educational system has entered a new era of comprehensive accountability--results-based accountability. The state will set expectations and measure student learning outcomes; systems, schools, and local educators will be rewarded for exceeding the standards; and the state will intervene to rescue children from schools that are persistently falling below the standards. Given the movement toward comprehensive, results-based, accountability systems in several states, it is time to revisit the issue of decentralization in public education. Education researchers and policymakers should carefully consider the issue of decentralization within such accountability systems. To the extent that the rewards for success and interventions to rescue children from low performing schools prove to be significant in state accountability systems, local educators, in these states and in other states implementing similar incentives, should be given increased flexibility over paperwork, resources, personnel, and curriculum.

The purpose of flexibility within a results-based accountability system is to allow educators and schools to create their own roadmaps for educational success given their unique student populations, circumstances, and personnel. The level of flexibility that is desirable under a results-based accountability system is much larger than that which is desirable under the typical way of doing things, which in Georgia pre Y2K reforms meant accountability based on inputs, process, and program implementation. Within a results-based accountability system educators and schools have strong incentives to do whatever it takes to achieve the specified student learning goals.

Any increase in flexibility is only possible because of the new era of accountability. The more that systems, schools, and personnel are rewarded for successes and subject to interventions for any failures, the more flexibility that may be granted to local educators.

The combination of empowerment through local flexibility and consequences through rewards and interventions would give local educators the motivation and incentives to do whatever it takes to make sure the students in their care succeed.

State-imposed comprehensive accountability systems are dramatic increases in state regulation of curriculum and assessment coupled with incentives for increased student learning. By themselves, these new state regulations may lead to better student outcomes, just as many centrally imposed regulations perhaps lead to better outcomes--in the absence of accountability based on student outcomes. Nevertheless, without increased flexibility for local educators--flexibility over paperwork, resources, and personnel--these standards and accountability reforms will not achieve their full potential because they fail to capitalize on the initiative and industry of local educators and they better information they have about unique local talents and circumstances. In addition, failure to empower local educators while holding them ultimately responsible for student learning outcomes will lead to an exodus from public education among local educators at best and political pressure from within to emasculate accountability reforms. For these reasons, we recommend large increases in autonomy for local educators under comprehensive accountability systems.

Potential negative unintended consequences from high stakes testing, incentives, or local flexibility can be mitigated by school governance changes such as school councils and school choice.

Agenda for Policy Research

As noted by Hanushek (1995) and Hannaway (1996), how well students learn under comprehensive accountability systems coupled with local flexibility will determine the success of this, and any, education reform. In particular, a system of incentives and/or local flexibility may cause unintended harm to student learning by focusing too much attention on what is easily measurable and/or allowing autonomy to be misused without responsibility. Therefore, education research must increase efforts to evaluate the effects of these reforms on student learning. In addition, given that the basis for increasing local flexibility is premised on accurate measurement of student outcomes and significant incentives through rewards and interventions, education research must also analyze the extent to which measurement of student outcomes is accurate and incentives are meaningful. Without these conditions present, states and the federal government should be wary of going down the path, despite its promise, of increased flexibility for local educators.

Notes

[1] Scafidi and DeJarnett served on the staff of GERSC in 1999 and 2000, and Freeman served on the GERSC staff in 2000.

[2] The full text of this speech is available on-line at http://ganet.org/governor/edreform/speech.html

[3] The other three committees were:

Funding: which studied ways to increase equity of school funding across the state.

School Climate: which, in the wake of the Columbine (Colorado) and Heritage High (Georgia) violence, studied ways to make schools safer.

Seamless Education: which studied ways to make the transitions from k-12 to technical colleges, and k-12 to two-year colleges easier.

[4] None of the accountability members were officials in teachers' unions or professional organizations or any of the other professional organizations for educators (school board, school superintendents, etc.).

[5] For example, Georgia State University Professor Gary Henry made several presentations to the accountability committee very early in the process. Previously, he served as an education official in Virginia and consulted with the state of North Carolina when they set up a testing and accountability system. Gwinnett County (GA) School Superintendent Alvin Wilbanks, who instituted high stakes testing in his district's schools, served as a Committee member as well. These individuals, as well as education officials from Texas and North Carolina who also made presentations to the accountability committee, seemed to support very strongly the "Standards and Expectations" recommendation of the 1983 "A Nation at Risk" report, which called for "rigorous and measurable standards, and higher expectations, for academic performance and student conduct."

[6] Many states that have implemented accountability systems such as Georgia's have rewards and interventions. For example, Kentucky and North Carolina give bonuses to teachers at schools deemed successful (based on their students' outcomes). Florida allows students at schools deemed failing to transfer to other public schools in the district, at the district's expense and offers them a modest scholarship to attend a private school (the private school portion of thes school choice option is currently under litigation).

[7] Georgia Official Code 20-14-14

[8] Georgia Official Code 12-14-41

[9] Examples of these consequences around the nation include cash bonuses to teachers in schools deemed successful in Kentucky and North Carolina and public school choice for students in schools deemed persistently failing in Florida. For schools deemed failing, many states have reconstitution and removal of school personnel at the behest of the state, but these provisions are rarely implemented. Failure to utilize interventions leads to an elimination of any motivational benefits that come from having consequences.

[10] Helen Ladd has wondered, "whether the undesirable side effects of accountability and incentive systems can be kept to a tolerable level

(Ladd, 1996)." Issues surrounding standards and accountability include the accuracy and quality of curriculum-based exams, whether such exams and incentives in general cause too many unintended consequences that harm teaching and learning, and whether all children benefit from these exams and from comprehensive accountability systems. Good references on these debates over accountability and the validity of high stakes testing include, Behn (1997), Betts (1998), Hannaway (996), Kohn (1999), Ladd (1999), Koretz, et al (1996), Grissmer, et al (2000), Klein, et al (2000), and the contents of the volumes Holding Schools Accountable (1996), edited by Ladd, and Improving America's Schools: The Role of Incentives, edited by Hanushek and Jorgensen.

[11] Thus, federal government efforts to provide local educators more flexibility over federal taxpayer resources could be made contingent upon the existence of comprehensive state-level accountability systems.

[12] While working for GERSC, we heard several Georgia state employees suggest that it was "impossible" to have local flexibility and accountability at the same time. Their comments suggest that the culture of state monitoring of local inputs, process, and program implementation is alive and well--despite the passage of a results-based comprehensive accountability system the previous year. Examples of "accountability" for inputs, processes, and implementation include state regulations on maximum class size, state prescribed curricular programs, and teacher salary schedules. For each of these examples, many states hold local educators "accountable" for adhering to and implementing these state mandates. These examples are in contrast to states holding local educators accountable for results--student learning outcomes.

[13] Surely college professors would love to avoid annual reviews of their research productivity, student evaluations of their teaching, and deans watching the number of students signing up for their courses and the national rankings of their departments. Each of these output measures is used to determine annual pay increases. In the absence of these measures of productivity, strong rules and regulations would be needed to govern professors' activities. Similar analogies can be made for all occupations, inside and outside of education.

[14] Chicago public schools have school councils that have real power--each school council hires its school's principal. See Bryk, et al (1998) for more details of the school governance structure in Chicago. Given the vast differences in authority, it is likely that the impact of Georgia's school councils will be much smaller, under existing legislation, relative to the Chicago experience.

[15] Under a school choice regime principals and teachers would be the local educators who directly make educational decisions, while parents vote to give local educators power to make decisions for their children through their school choice decisions.

[16] Hannaway (1996) suggests that local educators who are given, for

the first time, a large degree of autonomy need training in "the range of production possibilities in education" as well. If empowered to make changes, held sufficiently responsible for their decisions, and skilled in management, local educators will take it upon themselves to discover and create "possibilities in education."

[17] In its 2000 education reform law, Georgia began to enforce decreased maximum class sizes.

[18] The Massachusetts Institute for New Teachers (MINT) is such a state program. MINT recruits college graduates to enter its summer program. MINT students teach summer school in the morning and take teacher preparation courses in the evening. Individual public schools in Massachusetts are permitted to hire MINT graduates and grant them full certification. By expanding the pool of available teachers, the state has given local educators more flexibility over personnel (Scafidi, 2000).

[19] Interview with Texas education official Dr. Criss Cloudt and documents from the Florida Department of Education and Florida Senate Bill 1770.

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The Elementary Principal/Superintendent Relationship as Perceived by Teachers and Its Effects on the School: A Case Study Comparison

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Abstract

Despite more than a decade of research on bottom-up school change, the principal/ superintendent relationship continues to be studied primarily as a traditional flow of power from the top down. There is little research that considers the proposition that power vested in principals can be exercised upwardly within the school district hierarchy in the form of independence from and influence on the superintendent. Given the lack of research on these phenomena, it is not surprising that we could find no studies that explore the effects of hierarchical independence and influence on school climate. The present study investigates both. Two schools form the basis of this comparative case study. The schools were chosen based on scores obtained through the *OCDQ* and *TAI* instruments. The first school is selected for its high scores on both instruments and the second school is selected based on average scores on the *OCDQ* and the *TAI*. Both schools are in the same school district and a brief description of that district begins the discussion. Individual case study findings as well as a comparison of the two case studies follow.

I. Hierarchical Independence and Influence

According to Hoy and Miskel (1991), principals use hierarchical independence and influence within the formal structure of the district to give, various resources for the school. Hoy and Miskel define hierarchical independence as, "the extent to which administrators demonstrate their autonomy from superiors" (p. 81). To illustrate, a principal exerts hierarchical independence from the superintendent when she decides to implement a major reform or instructional innovation, relying on her own expertise, knowledge, and ability to acquire resources rather than relying on guidance and resources from the superintendent or central office administrators (Fullan, Anderson, & Newton, 1986; Leithwood, 1988).

Hoy and Miskel (1991) describe hierarchical influence as the ability of the principal to gain positive benefits for the school from the superintendent. Adapting from the above illustration, hierarchical influence is used when a principal persuades the superintendent to support a unique school program or to provide additional resources to the school

Hierarchical independence and influence, though important, can be difficult for a principal to exercise. As middle level a administrator in a hierarchical organization, a principal simultaneously occupies a subordinate and superordinate position. Consequently, a principal must balance often-competing demands and expectations from the superintendent and teachers. Moreover, while both the superintendent and teachers value independent and influential action on the part of the principal, they do so for different reasons.

For the superintendent, independence and influence are valued when problems are resolved at the school level or when external resources are secured with little encumbrance to the district (Crowson & Morris, 1984). Independent or influential action that is inconsistent with the expectations of the superintendent or that creates problems for central office is viewed with a less sanguine eve. Teachers, on the other hand, value independent and influential actions when these actions bring needed resources co the school, are consistent with the values held by the faculty (Porter & Lemon, 1988), or buffer the faculty from external demands and pressures

School Climate

We propose that teachers, as prime beneficiaries of a principal's upward exercise of power, are uniquely positioned to observe the effects of a principal's use of hierarchical independence and influence.

As teachers observe this dynamic, according to Boyan (1988), their perceptions of school climate are affected. Although there is little consensus concerning forces that mold school climate, variables that have been studied include principal leadership (Kottcamp, Mulhern, & Hoy, 1987; Purkey & Smith, 1983; Taylor& Tashakkori, 1995), teacher morale (Pallas, 1988), and academic emphasis (Hoy & Woolfolk, 1993). Some researchers (Halpin, 1966; Hoy, Tarter, & Bliss, 1990) describe school climate as ranging from open to closed. Schools with an open climate operate with few rules or regulations while schools with a closed climate are hampered with restrictive rules and regulations and close supervision (Hoy et al., 1990).

These studies and others (e.g., Boyan, 1988) suggest that school climate is a mediating factor in the academic achievement of students, adding to its importance as a focus of educational research. As noted, we base the definitions of our terms on Hoy and Miskel (1991). These authors defined school climate as the "relatively enduring quality of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools" (Hoy & Miskel, 1991, p. 221).

II. Limitations

In our study, we consider teachers' impressions of principals' exercise of hierarchical independence and influence, and examine the extent to which these impressions affect teachers' perceptions of school climate. At this point, it is necessary, to acknowledge some important limitations of our study. District size plays a role in shaping the relationship between the principal and superintendent. In small districts, because there are fewer levels of administration to separate a superintendent from principals (Crowson & Morris, 1985), the principal/superintendent relationship is more direct and interactions more frequent than in large districts. Large districts are characterized by many administrative levels between a principal and the superintendent, creating indirect and often impersonal communication between the two, thereby muting the relationship (Crowson & Morris, 1985; Boyan, 1988). In order to enhance the chances of finding an effect, if there is one, our study occurred in a small, rural district and is unlikely to generalize to large or urban districts.

Similarly, elementary schools, because they are smaller and structurally less complex than secondary schools, offer a better context for initial explorations of teachers' perceptions of the principal/superintendent relationship. Because our study occurred in at the elementary level, results may not generalize to secondary schools. Finally with regard to limitations, the linkage between teachers' perceptions of the principal/superintendent and their perceptions of school climate is indirect. Still, we assert that these perceptions are inherent in the complex reality of schools. Given the impact of school climate on student achievement, exploring the linkage between teachers' perceptions of the principal/superintendent relationship and school climate merits study.

III. Statement of Problem

The teacher perceived power vested in principals in the form of independence from and influence on the superintendent may relate to teachers' perceptions of school climate as well. Given the lack of research on these phenomena, we explore the effects of hierarchical independence and influence on school climate as perceived by teachers. This case study is an illustration of how this relationship is played out in practice. Determining how and why teachers value certain aspects of their principal's relationship with the superintendent allows knowledge to be gained about the functioning of schools and how schools can become more effective.

IV. Method

Our study uses case analysis to compare a typical school ~with a positive outlier, a research design recommended by effective schools researchers (Teddlie &. Stringfield, 1993). Results reported here are part of a larger study that took place in a southern state and investigated the effect of the hierarchical independence and influence on school climate. For the larger study, sample districts and schools were selected on that criterion that both the superintendent and the principals had been in their current position for at least 3 years. This criterion gave the principals and their respective superintendent a chance to develop a relationship before the study data were collected. As noted above, all participating schools were at the elementary level and were comprised of grades kindergarten through five.

To gather the data, all regular education teachers in these schools were asked to complete two questionnaires. To measure teachers' perceptions of principal hierarchical independence and influence, the *Teacher Attitude Inventory* (Glascock, 1996 [TAI]), was developed. A panel of six experts was used to analyze possible items for the *Teacher Attitude Inventory (TAI)* survey developed. The experts are two professors in educational administration, one professor in educational research, two principals, and one 12-year veteran teacher. Each expert was told the purpose of the *TAI* survey and what each section is intended to measure. Modifications and changes were made to items based on the advice and opinions of these experts.

The *Teacher Attitude Inventory (TAI)* includes 14 statements that measure teachers' perceptions of the principal's level of independence from and influence with the superintendent. Independence is defined as "the extent to which administrators demonstrate their autonomy from superiors as they interact with teachers" (Hoy & Miskel, 1991). This independence from and influence with the superintendent is measured by a five point Likert scale ranging from "strongly agree" to "strongly disagree", with a response option of "don't know" included. Scoring is completed by reverse coding negative questions for independence and influence, and the summing the seven item scores. Each set of scores is aggregated to the school level and the average is generated so that there is one score for each school.

To assess school climate, teachers completed the *Organizational Climate Description Questionnaire - Revised Elementary* (Hoy, Tarter, & Kottcamp, 1991 [OCDQ-RE]). The *OCDQ-RE* measures school climate using two components. One component, principal behavior is comprised of three dimensions, including directive, supportive, and restrictive. Hoy et al. (1991) report Cronbach's alphas of .95 to .80 for these dimensions. The second component of the OCDQ-RE, teacher behavior, also consists of three components, disengaged, collegial, and intimate. Cronbach's alpha for these dimensions range from .90 to .75 (Hoy et al, 1991). For each dimension in both components, scores fall into one of five categories ranging from very low through average to yew high.

The case studies reported here involve two schools that were selected using results from both questionnaires. As noted, one school was typical. In this school, teachers scored nearest the mean on both questionnaires. The other school, a positive outlier, was chosen because teachers scored farthest from the mean on both questionnaires. Serendipitously, both of these schools were located in the same district, permitting more meaningful comparisons.

To gather data, both schools were visited for two days each. During this time, the principal and a random sample of teachers were interviewed. In addition, parents and ancillary personnel, such as the school nurse, were interviewed. A protocol explored the extent to which the superintendent played a role in the day-to-day life of the school; beliefs held by faculty and the principal about the relationship between the principal and superintendent; and the effect the relationship between the principal and superintendent had, respectively, on teachers and principal on a typical day. In addition, information was gathered. The researcher spent time observing and having casual interactions in the halls, cafeteria, and on the playground. Interviews were held for half an hour to an hour with individuals and taped. Classes were observed and children were engaged in casual conversation. The researcher kept a running record through tape recordings during all sessions and observations. Over 200 pages of transcribed notes and interviews were generated. In presenting the results, pseudonyms are used to ensure the confidentiality of participating schools and individuals.

V. Results

The case analyses reported below explore the relationship between teachers' perceptions of principal hierarchical independence and influence and their perceptions of school climate. Findings for each school are presented separately, and include the results of the *TAI* (teacher perceptions of the principal's hierarchical independence and influence) and *OCDQ-RE* (teacher perceptions of school climate), a brief contextual description of the school and professional staff, the impressions of the teachers who were interviewed regarding (a) the principal's exercise of hierarchical independence and influence and (b) the school's climate. Our discussion of the results concludes with a comparison of the two schools in terms of teachers' perceptions of principal hierarchical independence and influence and their perceptions of school climate.

District Description

The two schools are in the same district as noted, hence, we begin with a description of the district. The Jackson County school district was once considered rural and poor, but now has a more exurban flavor and serves as a bedroom community for a nearby city. Over half of the population is high school graduates and nearly 10% have college degrees (U.S. Census Bureau, 1990). Of the 17,000 students who attend the 8 schools in Jackson County, 94% are European American, with 6% of the students describing themselves as African American or other.

Greenbriar Elementary (typical school)

The *TAI* score is 18.111 indicating that teachers have a neutral to positive perception of the principal/superintendent relationship. The Greenbriar Elementary scores in the average, low, and very low categories on the principal dimensions of supportive (495.258), directive (429.906) and restrictive (397.032) of the *OCDQ*. Scores are high in the collegial (586.357), very high in the intimate (609.299), and average in the disengaged (497.619) dimensions. These scores indicate a school in which teachers perceive moderate levels of principal positive or negative behaviors that impact their work life, teachers have good rapport with each other but teachers are somewhat disengaged from the workplace. This school is between the engaged and disengaged climates described in the typology of climate developed by Hoy, Tarter, and Kottcamp (1991). However, while teachers reported good rapport among themselves, on the typology developed by Hoy et al. (1991), they tended toward disengagement from the workplace.

As mentioned previously, additional data were collected through interviews. At Greenbriar, interviews were conducted with the principal, 3 teachers, a student teacher, 3 parent aides, and the school nurse. As will be seen, these participants were uniformly positive about the principal.

The school itself serves children from the working class community that it is located. Brickwork on the 30-year old building has faded to a grayish red color and the window trim is dull with age. Once inside the building, an orientation toward neatness and cleanliness is evident. Splashes of color from student artwork adorning classroom doors brighten the faded pastels of the hallways. Classrooms are clean, though many are cluttered because there is not enough room to hold all the instructional materials, books, art supplies, and maps. One teacher explained, " With so many children, we have no room for instructional materials." The principal's office is small but professional in appearance. Walls display many citations and awards earned by the school. Like the classrooms, the principal's desk is cluttered as if too many things require her attention. In the cramped outer office, where the secretary sits, an up-to-date computer stands out against the other office equipment which old and worn.

Most of the 450 children who attend Greenbriar walk to school. School demographics reflect the district, with 9'4% of the students describing themselves as white, 6% as black, and 35% as eligible for free-or-reduced-price lunch. According to the Food and Nutrition Bureau of the state Department of Education (1995), Greenbriar is a low poverty school. As might be expected given the demographics, the students do reasonably well on standardized tests, performing above the district, state, and national median percentile for fourth graders on the California Achievement Test.

Also consistent with the demographics, children were well behaved and quietly involved themselves in their assignments. In one of the few instances when disciplinary action was required, two children were sent to stand in the hallway just outside the classroom door. The teacher of the offending students explained they had been removed for talking out of turn, noting, "Children are not allowed to disrupt classroom activities."

There appeared to be a genuine friendship among the teachers and between the faculty and the principal. One teacher noted that, "Many of the teachers and the principal play Keno once a week, and this year, as soon as school ends, several of the teachers and the principal are going on vacation together."

In addition, Greenbriar enjoyed strong parental support and many parent volunteers. During the 2 days of observation, 20 parents were observed assisting teachers in the classroom or with clerical chores, such as duplicating papers. These parents sincerely liked the teachers and the principal, and felt the school operated well. One commented, "The principal maintains discipline and the children know and follow the rules so this school runs really well."

Curiously, of all the people interviewed, the school nurse was the only one who mentioned the children's intellectual growth without prompting from the interviewer, noting "Itis very important to give the children a chance to learn as much as possible." Neither the teachers nor the parent aides offered such statements. Moreover, when asked directly about the students' learning, teachers and parents unanimously responded "Discipline is very strict in the school and the principal does not allow children to interrupt the learning of others." The recurring theme that surfaced during the interviews was that discipline was the most important objective of the school. Asked if discipline was important of itself or as a prerequisite for learning, one teacher said "Discipline is just as important as knowledge."

The principal, Ms. Cook, like the faculty, is a white female. Now in her late fifties, Ms. Cook has been an educator in the district for over 20 years, the last 4 of which have been as principal at Greenbriar. She is professional in dress and demeanor with an air of strength about her; yet, she smiles easily. Ms. Cook was very open to questions and had no hesitancy in offering opinions about teachers, children, the school, parents, or the district staff. She was quite proud of the staff' rapport and mentioned the Keno nights and the upcoming vacation as evidence. This network of friendship was perhaps more important because of the contrast it offered to the prior principal. The prior principal was a male who the teachers viewed as authoritarian and unfriendly. Teachers seemed to appreciate that Ms. Cook went out of her way to establish good communication with them and to include them in group activities. Her more cordial demeanor did not hinder school operations, however. It was mentioned the children's intellectual growth without prompting from the interviewer, noting that "It is very important to give the children a chance to learn as much as possible.' Neither the teachers nor the parent aides offered such statements. Moreover, when asked directly about the students' learning, teachers and parents unanimously responded "Discipline is very strict in the school and tile principal does not allow children to interrupt the learning of others." The recurring theme that surfaced during the interviews was that discipline was the most important objective of the school. Asked if discipline was important of itself or as a prerequisite for learning, one teacher said, "Discipline is just as important as knowledge."

As suggested above, Ms. Cook did not mention students' academic or social performance until ask specifically. Even then, she did not speak of test scores, though it will be remembered that the schools scored above the state and district average median percentile, and when pressed about student behavior, Ms. Cook stated firmly that children "are here to learn. No child can interfere with the learning others." It was as if the children were not the purpose of the school, but a separate entity, not integral to the functioning of the school.

The principal's view of the superintendent was fairly distant. She did not indicate any personal relationship or friendliness, but there was a sense of professional respect and loyalty. Ms. Cook is one of the district personnel who are aligned with the superintendent, as opposed to the more conservative members of the school board. According to Ms. Cook, she supported the superintendent because he established good procedures, tried to respond to individual school needs, and addressed problems quietly.

Ms. Cook's description of her relationship with the superintendent indicated limited interaction between them that might suggest a low level of principal influence with the superintendent. That type of interaction does not appear to exist between this principal and the superintendent. At the same time, Ms. Cook did not any negative feelings about

As to disciplinary actions, very little is observed. One incident occurred while the researcher was in the main secretary's office. A child was sent to the office during the observation period for disciplinary reasons. The secretary seemed very familiar with the student, asking him "Why are you here this time? Sit down and the principal will see you when she has the time." At another point, two children were observed standing in the hallway, next to a classroom door. They had been removed from their classrooms for talking out of turn. As one teacher explained, "Children are not allowed to disrupt classroom activities."

School Climate.

The school was visited in the late spring of the year. End of the year activities, such as special topics in classes where all curriculum needs have been met, assemblies, and parties have begun, yet there is a quiet, orderly feel to the school. Children are following an established routine, both as to activities and expected behavior. Before the first bell of the day, they are cheerful, talkative, and happy. Recess is physically active (running, climbing, and jumping) with the normal yelling, laughing, and small upsets that occur with children at play. End of the day activities are boisterous as the children become excited about going home.

The teachers appear calm, their demeanor, speech and body language indicate quiet confidence in the overall condition of the school. Those teachers interviewed stated that everything is in order and on schedule because the children cause no extreme difficulties, the curriculum is being completed on time and the paper work is complete.

Teachers are asked how they feel when contemplating the start of the day. One said, "Everything runs smoothly here, the children know the rules." Every teacher response given, whether about activities, climate or environment, expresses pleasure at the level of discipline in the school. It was the only response given related to the children. There was no bragging about the children's test scores, awards, and innovations in the classroom or a specific child who has excelled in some way. Teachers were also asked what they consider a good day at school. One stated that, "Any day is good when the children are quiet and everyone is in a good mood."

The parent aides indicate that they are pleased with the school. Discipline is maintained, their efforts as aides are appreciated and even the one teacher who is demanding is manageable. The school is functioning quietly.

As to whether the superintendent is active in the day-to-day operations of the school, the teachers responded that he is not considered an active part of the school. This situation indicates that the superintendent is not a close controller of the principal's activities, as far as the teachers are aware. Teachers did not offer any information about the principal's influence with the superintendent affecting the day-to-day operations of the school either. No connections appeared evident to the teachers interviewed that the principal/superintendent relationship played a role in shaping the climate of the school.

When interacting among themselves, the children laugh and talk with smiling faces and positive body language. In the classroom, their faces are mostly neutral and their bodies are slumped in their desks. No teacher was observed making classroom presentations with an excited voice or body language. The teachers appeared to be reciting lessons. There appears to be a missing connection between teachers and children, especially during class time.

Perceived Princípal/Superintendent Relationship.

Teachers at GREENBRIAR base their opinions of the principal's relationship with the superintendent on two factors: resources provided to the school and the principal's support for the superintendent over the school board's conservative members. All teachers interviewed are aware of the discord between the superintendent and the board; they are aware also of the principal's loyalty to the superintendent. The principal has made her position clear in a staff meeting.

The teachers feel that the school is receiving adequate resources, yet they are aware of the district's financial difficulties. While the teachers want more supplies and desire more computer equipment, they seem satisfied that all that could be done is being done. The teachers state that the principal is doing her best in trying to get more from the superintendent, yet seem unaware of how she is doing this task. As to the superintendent's role in the school, it is viewed as distant at best, if not non-existent. Most teachers could not remember if the superintendent had come to the school during the year. One teacher commented that, "He has more important things to do than come see us."

The principal's influence on the superintendent is viewed as difficult to ascertain by teachers. Teachers stated that, "Getting supplies are the only way we can tell if the principal can move the superintendent." Teachers do not perceive influence in any concrete fashion as a form of power on the part of the principal. The ability of the principal to influence the superintendent is seen as too invisible to teachers.

The concept of independence is easier for the teachers to discuss. The teachers interviewed believe that the principal is independent of the superintendent and makes most decisions herself. The teachers believe that the principal follows district guidelines and does not give the superintendent reasons to closely monitor the school or the principal. The teachers' point agrees with the research (Crowson & Morris, 1985) that describes principal strategies for maintaining or obtaining independence from the central office. Crowson and Morris (1985) describe principals being aware that the superintendent and central office will give greater latitude to principals who do not make trouble for the central office. This tacit understanding between principals and the central office is part of the informal method used to control district life.

Summary.

Greenbriar is an elementary school in a poor district, which has financial problems and leadership tensions as well. While there is a general awareness of the leadership tension, the awareness does not appear to cause great stress in the teachers or the school in general. The teachers appear to be able to isolate themselves from the district level tensions.

The school functions in a traditional manner, with discipline being the main objective of teachers, parents and principal. There is consensus among the adults that the school runs well. The teachers' comments appear to show a concentration on creating a pleasant work environment for themselves. The present principal has not been in place for a lengthy tenure so it would be of interest to follow this school and see if any changes develop which might demonstrate any awakening to potential problems.

Teachers appear to value their principal for sharing the same outlook on the mission of the school that is discipline above all else. The teachers also value personal friendships with the principal. There does not appear to be any overt awareness on the part of teachers about the principal/superintendent relationship.

Teachers do not indicate any belief that the principal is influential with the superintendent, rather the teachers appear to have no perceptions about that aspect of the relationship. The only indication that even hints at influence is that teachers feel an adequate amount of resources are available for the school. Independence is also rather vague for these teachers but somewhat stronger than influence. The teachers appear to believe that because there is no evidence of interference in school activities by the superintendent, the principal must be independent of the superintendent to a high degree. As with influence, the teachers show only vague interest or awareness in the principal/superintendent relationship. Rather, teachers appear to be centered on the relationships among themselves and with the principal only. The possibility of independence and influence being interwoven is not apparent.

Waterfall Elementary (high scoring school)

The *TAI* score is 23.737 indicating that the teachers have a positive perception of the principal/superintendent relationship On the*OCDQ*, the high elementary school Waterfall scores are in the very high category on the principal dimension of supportive (699.814), average in the directive dimension (510.938), and very low in the restrictive dimension (306.581). Scores are very high in the collegial (673.457) and intimate (672.570) dimensions and very low in the disengaged (355.079) dimension. This indicates a school in which teachers perceive high levels of principal positive behaviors and low levels of negative behavior which impacts teacher work life; teachers have good rapport with each other and are actively engaged in their work.

Waterfall is an elementary school, serving grades K-5 plus special education classes. There are 383 children and 26 faculty members. All the children are white as are the teachers (AFSR, 1994). Waterfall has 27.5% of their classes in the 1-20 range and the rest of the classes in the 21-26 range. Student attendance (96%) is also better than the district average (95.45%).

CRT results show the children to be scoring higher than the district and state average. Waterfall places fourth out of 18 district elementary schools on the CRT for grade three; and places fifth out of 18 district elementary schools on the CRT for grade five. CAT results for the fourth grade place fourth in the district in overall performance and well above the district, the state, and the national median percentile (PPDCR, 1994).

Waterfall is located in the rural, southern part of the district. The school is located in a curve of a secondary country road. Across the road from the school is a small hardware store. There are no neighborhoods, houses or commercial entities (other than the one mentioned) within half of a mile of the school. This part of the district consists of citizens who are considered to be poorer than the people in the northern two thirds of the district. Most of the population in the southern third is considered transient.

Waterfall is over thirty years old., simple in design and consists of two faded red brick buildings and a modular cafeteria. Since the building is on a curve of a secondary, rural road that has been the sight of several accidents, attempts have been made to reinforce the chain link fence surrounding the property. The front drive where buses and cars dropped off children has a courtyard appeal with three large trees shadowing the pavement and the front of the buildings. Artwork dots the classroom windowpanes.

The interior of the school is spotless. The janitor starts polishing the floor as soon as the children begin the first class. Children's artwork is arranged beside the classroom doors and the colors of the walls are pastel and cool to the eye. The school is well lit and not cluttered with boxes, supplies or equipment. The cafeteria is spotless with the chairs and tables wiped clean and ready for children. There is new equipment purchased recently visible in the kitchen area.

The classrooms have neat cupboards to store supplies and there appears to be plenty of space for the children to move comfortably. The desks are widely spaced and there appears to be plenty of room the children to move around comfortably. The building is relatively old but inside the classrooms the age does not seem apparent. Instead the materials and furniture appear sturdy, up to date and useful.

The children are transported to school by bus and car. The children are from agricultural and working class families with incomes averaging below $30,000 (U.S. Census Bureau). Most of the children are dressed in clean but faded clothes with some of the clothes being too big or small. Thirty-four percent of the children qualified for the Breakfast program (Food and Nutrition Bureau, Louisiana Department of Education) putting Waterfall in the moderately poor category of schools. It should be noted that although there is a category break between the two schools, only one percentage point separates the schools in the measure of poverty.

Morning activities are boisterous (laughing and socializing loudly) and there are many interactions among teachers and children. These interactions include socializing and movement around the hallways, asking questions of teachers, receiving reassurance from teachers as to the day's activity. The children are observed quietly working in classes, helping each other and asking questions of their teachers. The children have smiles and positive body language such as sitting up straight, leaning forward and actively seeking inclusion by raising their hands.

All 26 teachers are white females who are local residents except for four from a nearby city who drive in each day. Thirty-five percent of the teachers hold at least a Master's degree and one holds a Ph.D. This percentage places the school above the district average but below the state average (PPDCR, 1994). The principal strongly encourages, both verbally and with financial support, those teachers who wish to pursue professional development activities. Teachers are taking advantage of these opportunities.

Two-day visit, five teachers are interviewed. Two themes emerge in these discussions. One theme is that children are the first priority of teachers and the principal. Each teacher interviewed mentioned the children, learning and the social needs of the children as their main concern and interest. The second theme is the teachers' enthusiasm for working with children. The teachers are enthusiastic about the children, future professional development, the principal's role in the school and each other. One teacher, Teacher A, who moved to the school from a large, urban school district in Texas, is most enthusiastic. Teacher A readily shared her ideas about the children, the teachers and the principal. Teacher A feels the school functions well because "the principal's personality and friendliness directly influence the attitudes of both teachers and children."

Another interviewee, a third grade teacher, Teacher B, expressed her concerns about the children, stating, "These children often come from broken homes and many times they don't know where they will be sleeping that night. This school is their only stability." Teacher B is most concerned about the children as people and feels the atmosphere of the school helps these children cope with the stress they have at home. Teacher B stated that "children need a nurturing presence in their lives and unfortunately we are the only ones who give it to them sometimes".

A kindergarten teacher stated that the principal's willingness to approach the superintendent about new techniques for "hands on manipulatives" has improved the learning experience of her students. This kindergarten teacher feels that the principal has brought many new ideas to the school during the five years she has been there and also appreciates the principal's continued support for workshops and seminars. "The workshops are very important and when we go out of town for one, we try to save the money for travel so we can spend it on supplies for the children," she explained.

The principal is a white female in her late forties or early fifties. The principal had been a teacher in the district for almost twenty years before moving to WATERFALL three years previously. She is very open and friendly, offering to assist the researcher in any possible way. No visible sign of stress are evident in the teachers at these interruptions. The teachers act as if the interruption were a normal occurrence. The teachers have been prepared for the arrival of the researcher. The principal has given all the staff nametags, telling the researcher it will make the process friendlier.

The principal expressed pride about the school in three ways. First, the children are cared for both emotionally and physically and a good learning environment is provided for them. Second, the principal is proud of her teachers because they are willing to improve their professional skills and are actively pursuing further educational opportunities. The principal stated "I try to provide funds for any teacher who wants to attend workshops that improve their teaching and bring new techniques to the classroom." Third, the principal is impressed by the community dedication to the school. An example of that dedication is the group of five women who run the library for the school. Not one of the five women has a child in the school, but they want to perform this service for their community. The principal stated "This community ownership of the school rubs off on the attitude of teachers and students alike."

The principal is also proud of the instructional choices made by the school staff. In the previous year, the principal offered the teachers a choice of either a librarian or physical education teacher for a new staff position. The teachers decided that the five women running the library performed well so they chose the physical education teacher. Two things are significant about this event. First, the principal did not make the choice, she allowed the teachers to make the choice. Second, the reason for the physical education choice was predicated on the rather poor physical condition and coordination of many of the children. In other words, the teachers make choices based on the immediate needs of the children. As the principal described it, "Teachers in this school care deeply for the children's well being, both mental and physical."

This principal has a professional and personal relationship with the superintendent. She taught his children and knows the superintendent as a parent. The principal is very active in the district, serving as president of the district principal's association and working closely with the central office to find resources for her school. The principal said, "I bother them to death and they give me some of what I want just to get rid of me."

School Climate

The school was visited in the spring of the year. The hallways are quiet and everyone, teachers and children alike, are busily engaged in learning activities. No discipline problems are noticed. A general atmosphere of cooperation exists.

When teachers were asked how they approach each day, one responded that, "coming to school is fun. I really get excited about seeing the children." All the comments were positive. The teachers feel relaxed and comfortable with their school. When asked what a good day at school is like, teachers offer smiles and say "A good day is when everyone learns." "When the children come to school and can learn because they are not hungry and home was quiet the night before." "When there is laughter and we get that a lot here."

One teacher offered her curriculum choices as an example of how the principal allows creativity in the classroom. At the end of the spring term, this teacher works with the children on a crafts approach to Louisiana culture. "I have the children make different types of maps using beans native to the state for materials. I bring in Cajun storytellers, singers, and even a politician or two to speak with the children." Her classroom hums along and buzzes with activities. The teacher moves from one group of children to another, offering comments and answering questions. As she tells the story, she smiles and her eyes twinkles, "The children can laugh, talk, and learn all at the same time."

WATERFALL teachers hold the same views as GREENBRIAR teachers about the superintendent. The teachers really only perceive the superintendent through the principal. The principal is perceived as funneling the superintendent input to the school and because the teachers feel supported in their efforts, the superintendent is perceived as having an indirectly positive effect on the school. The principal is perceived by the teachers as having a good relationship with the superintendent, both formal and informal. The formal relationship is demonstrated through the principal's high profile with the central office and her ability to receive what the teachers perceive as special attention for the school. The teachers believe that this situation is another demonstration of the positive nature of their school.

Three themes emerge about climate based on observations and interviews. First, children are the focus of school activities and the principal and teachers work to give the school a conducive learning atmosphere. Second, the principal succeeds in building an air of professional energy about teacher growth because growth is viewed as important to enhance the abilities of teachers. Third, the principal creates an aura of efficiency and effectiveness by providing resources for the children and teachers. The teachers perceive their principal as having positive influence with the superintendent which has proven beneficial for their school by providing resources, including funds for professional growth and classroom needs such as the computer lab. The teachers also believe that positive results have grown from the principal's ability to act independently of the superintendent. This independence has been displayed by the principal being allowed to incorporate new curriculum designs in the classroom that are not necessarily in line with district policy. The teachers believe that the principal was able to accomplish this task because the superintendent gave her greater independence because of the superintendent's trust in the principal's abilities.

Perceived Principal/Superintendent Relationship

Teacher responses at WATERFALL demonstrate only vague awareness of the principal's relationship with the superintendent. The teachers know of the principal's previous history with the superintendent and that she is able to speak with the superintendent more often than would be generally expected. Teachers also know how hard the principal works to gain resources from the central office. Unlike GREENBRIAR teachers, these teachers do not mention the antagonism between the school board and the superintendent. Either it is removed from their immediate focus or the teachers do not think it appropriate for discussion.

Teachers explain that their school is receiving more resources than other schools in the district because of the efforts of the principal. One stated, "The principal is constantly thinking of new ways to move the superintendent toward new curriculum and innovative programs." A kindergarten teacher is particularly vocal on this issue. She said, "Without the principal's support I would never have gone to the workshops and learned about new ways to stimulate my slow learner." As stated in relationship to climate, the teachers feel that the principal is able to have great influence with the superintendent. The principal is also able to act independently because the superintendent trusts her judgment. For example, the principal is allowed to modify curriculum in the school rather than strictly follow district policy, as mention in the climate section.

As to a role for the superintendent in the school, the teachers do not see it as direct. His role, as explained by one teacher, "is to manage finances, talk to the board and provide the schools what they need." The superintendent's role is viewed as being indirect and funneled through the principal. The principal is the link between the school and the outside world. As with GREENBRIAR teachers, WATERFALL teachers are vague about many aspects of the principal/superintendent relationship.

However, WATERFALL teachers appear to view their principal as being very influential with the superintendent. The personal nature of the relationship is given as one reason for this success (Hart, 1993). WATERFALL teachers appear to be aware of and value the principal's hierarchical independence and influence. The teachers believe that the principal's ability to act independently is a sign of influence with the superintendent. The principal's independence is valued as a resource by the WATERFALL teachers.

Summary

WATERFALL functions in a participative type of administration. The WATERFALL principal gives the teachers a great deal of autonomy and allows teachers to participate in school wide decisions. There is consensus among the WATERFALL teachers that the school is working well. One teacher said, "Things run smoothly here and the children are learning." Based on interviews, there is a united goal for WATERFALL and that goal is to help the children learn. Attaining this goal is being accomplished in three ways: teachers and the principal work to create a positive learning environment for the children; teachers are being encouraged to grow professionally for their personal benefit and the benefit of the children; and resources are found by the principal to enhance the learning environment.

This much can be deduced from the teachers remarks, the principal proves to be influential by providing resources for the benefit of the school. The principal is also able to act independently about such matters as curriculum. The principal is able to give the teachers latitude to try new curriculum approaches. The teachers view this as independence on the part of the principal as beneficial to the school. From the teachers' viewpoint both hierarchical independence and influence are perceived within the principal/superintendent relationship.

Comparison of Greenbriar and Waterfall Related to Principal/Superintendent Relationship and School Climate as Perceived by the Teachers

When comparing schools, it is important to ask the same types of questions and look for the same types of situations and information. True comparisons can then be made. Nuances and specific differences are discovered and play an important role. While no attempt was made to choose schools in the same district, the situation occurred and allowed the researcher to make more in depth comparisons since the schools share the same superintendent. There are differences in the *OCDQ* dimension and *TAI* scores (see Table 1) that offer a beginning point for a discussion of the two schools. The qualitative section on the present research offers greater insight into the differences recognized by the*OCDQ* and the *TAI.*

Table 1
Case Studies: Comparison of *OCDQ* and *TAI* Scores, Demographic Information, and Academic Tests Results Between the Greenbriar and Waterfall Elementary Schools

Item	Greenbriar	Waterfall
OCDQ dimension scores		
Supportive	495.3	699.8
Directive	429.9	510.9
Restrictive	397.0	306.6
Collegial	586.4	673.5
Intimate	609.3	672.6
Disengaged	497.6	355.1
TAI	18.1	23.7
Student Population	450	383
Faculty Size	32	26
Student Attendance	95.73	96%
Suspensions	4.43%	.69%
CRT-Grade 3 (Language/Mathematics)	96/97	98/100
CRT Scores-Grade 5 (Language/Mathematics)	84/91	94/98
CAT Scores-Grade 4 Median Percentile	69.5	72.7

Principal

Principals at the two schools differ in many ways. The two most important deal with the mission of the school and norms for the professional level of teachers. At GREENBRIAR, the mission is to maintain a quiet, well-disciplined student body that does not disrupt the teachers' work environment. The principal said, "No child is allowed to disrupt class." While at WATERFALL, the mission is to provide a nurturing learning environment for the children. This difference between the two principals' results in a teacher centered environment at GREENBRIAR and a child-centered environment at WATERFALL.

The second difference deals with the professional development of teachers. The principal or teachers at GREENBRIAR did not mention professional development and when asked, the principal replied, "the school year is too busy for the teachers already so I leave that decision up to individual teachers". At WATERFALL, the principal finds seminars, workshops and other opportunities for the teachers to grow professionally and publicizes these events to her teachers. The WATERFALL principal actively recruits teachers to attend the events and finds incentives, both financial (district and private) and emotional, to entice the teachers.

Another difference is worth noting. The WATERFALL principal has good rapport with the superintendent that appears to give her greater access and a greater willingness to interact with the central office for obtaining resources. This personal relationship between the principal and the superintendent appears to be a significant contributor to the principal's success in obtaining resources.

School Climate

In both schools, the teachers state that they are satisfied with the psychological feel of their school, yet there are telling differences. GREENBRIAR teachers appear satisfied with the status quo while WATERFALL teachers are eager to use new ideas and approaches to education. GREENBRIAR appears to be ruled by a need for discipline while WATERFALL appears to be ruled by the children's needs. It is as if GREENBRIAR principal, teachers and parents view the children only in terms of how the children affect the adults in the school. On the other hand, WATERFALL appears to be concerned with the children's needs before any others. At WATERFALL discipline is one of many tools helping to create a good learning environment for the children. Resources, new ideas, innovations in curriculum choices and nurturing of the whole child are just as important tools.

Perceived Principal/Superintendent Relationship

Neither GREENBRIAR nor WATERFALL teachers state any knowledge about the principal/ superintendent relationship beyond the principal's ability to garner resources for their school and act independently. GREENBRIAR teachers are aware of their principal's support for the superintendent over the school board but appear unaffected by the situation. WATERFALL teachers are aware of their principal's personal relationship with the superintendent and value that relationship in terms of influence (resource allocations) and independence (curriculum changes).

This finding moves in concert with those items on the *TAI* that deal with influence as the principal's ability to gather resources for the benefit the school. At the same time, the WATERFALL principal demonstrates independence in decision making about curriculum materials and new instructional approaches. WATERFALL teachers perceive both hierarchical independence and influence together.

VI. Conclusion

One theme emerges from these two case studies. GREENBRIAR and WATERFALL staffs view the missions of their school differently. At GREENBRIAR, the staff expresses their mission as a concern for their work environment and that the school maintains "good discipline." The mission at WATERFALL is to provide a good learning environment for the children. At GREENBRIAR learning is secondary to discipline and at WATERFALL learning is the number one priority. Climate is perceived differently because of the GREENBRIAR teachers differ in what they value from the WATERFALL teachers. The WATERFALL teachers value a climate that is conducive to learning and nurturing children; GREENBRIAR teachers value a climate that is conducive to a smooth working situation for them.

Specific to the present study, indications of hierarchical independence and influence are very different at the two schools. At GREENBRIAR, teachers appear to be unaware of any direct relationship between their principal and the superintendent, other than the formal, organizational relationship. GREENBRIAR teachers do not voice any awareness of principal influence with the superintendent, other than receiving necessary resources at an adequate level. The principal at GREENBRIAR is considered to be in charge of the school and the superintendent is not seen as an interruptive force that indicates some independence on the part of the principal. That independence is not overtly displayed though; rather the teachers almost view the school as an island that is semi-detached from the rest of the world. The display of independence is an almost passive, caused more by circumstances than by action.

The climate of GREENBRIAR is good for teachers and principals, in their view. But that view is very narrow, as if the teachers and principal are wearing blinders. The teachers and principal do not consider the children in their scope of understanding what their school is. If the teachers are happy in their personal relationships with each other and the principal, then all must be well, according to the teachers. This finding places the teachers' perceptions of the principal/superintendent relationship and organizational climate in perspective. The principal/superintendent relationship and climate, when viewed in isolation, offer evidence about their possible connection. These two elements are not the only elements needed to form a good learning environment for children. Bossert (1982) and Duckworth (1984) both place the principal and climate in mediating positions, not major causality positions for student learning.

The missing component is the children. This development showcases the limitations of research that does not include the perceptions of all organizational groups. By leaving the children out, the research is limited in the ability to fully understand the true nature of the school climate. The teachers do believe that the principal directly affects the climate of their school. This is demonstrated through the comments about smooth operations and lack of problems with discipline at the school. The problem is not so much that the climate is disengaged or closed, rather the problems is at the mission level of organizations. These teachers and the principal are not motivated by children's needs, rather they are motivated by personal needs and there is no apparent dissatisfaction with that situation.

As to connections between hierarchical independence and influence and climate, the GREENBRIAR teachers appear to value the principal's independence and link it to the smooth running of the school. The smooth running appears is the GREENBRIAR teachers' perception of their school climate. The GREENBRIAR teachers are happy in their workplace and GREENBRIAR teachers have positive feelings about their school climate. This finding does not agree with the results of the quantitative study.

WATERFALL is a very different situation. WATERFALL teachers view their principal's relationship with the superintendent as dynamic, personal, and professional. WATERFALL teachers view the principal as actively seeking both independence and influence. Independence is represented through curriculum changes that are not in keeping with district requirements. Obtaining resources demonstrate influence in abundance in the teachers' view. The WATERFALL teachers believe that their school gets more materials and equipment and receive these resources quicker than other schools in the district. WATERFALL teachers attribute this situation directly to their principal's dynamic and multifaceted relationship with the superintendent. The relationship is seen as both personal and professional since the principal taught the superintendent's children.

The climate at WATERFALL is open, dynamic, and energetic. Teachers and principal alike are motivated by the children's needs. WATERFALL teachers actively examine new methods of instruction, new curricula, new resource materials, and share with each other the children's successes. The WATERFALL principal actively encourages the professional growth of her teachers, both financially and emotionally. The WATERFALL teachers view the principal/superintendent relationship as being one of the primary reasons for the principal's success in improving the school and creating the school's positive climate.

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